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Maine Agricultural Experiment Station

ORONO

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FEEDING STUFF INSPECTION.

15

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BULLETIN No. 156.

FEEDING STUFF INSPECTION.

CHAS. D. WOODS, Director.

J. M. BARTLETT, Chemist in charge of inspection analyses.

CHIEF REQUIREMENTS OF THE LAW.

The points of the law of most interest both to the dealer and consumer concisely stated, follow.

Kinds of Feed Exempt Under the Law. The law applies to all feeding stuffs *except* the following: hays and straws; whole seeds, meals, brans and middlings of wheat, rye, barley, oats, Indian corn, buckwheat and broom corn, sold separately; wheat bran and middlings mixed together and pure grains ground together.

Kinds of Feed Coming within the Law. The principal feeds coming under the provisions of the law are linseed meals, cottonseed meals, cottonseed feeds, pea meals, cocoanut meals, gluten meals, gluten feeds, maize feeds, starch feeds, sugar feeds, dried brewer's grains, dried distiller's grains, malt sprouts, hominy feeds, cerealine feeds, rice meals, oat feeds, corn and oat chops, corn and oat feeds, corn bran, ground beef or fish scraps, foods, poultry foods, stock foods, patented, proprietary and trade-mark stock and poultry foods, mixed feeds other than those composed solely of wheat bran and middlings mixed together or pure grains ground together, and all other materials of similar nature.

The Brand. Each package of feeding stuffs coming within the law shall bear, conspicuously printed, the following statements:

The number of net pounds contained in the package.

The name or trade-mark under which it is sold.

The name of the manufacturer or shipper.

The place of manufacture.

The place of business of manufacturer or shipper.

The percentage of crude protein.

The percentage of crude fat.

The Adulteration of Feeding Stuffs. If any foreign substances are added to whole or ground grain or wheat offals, the true mixture must be plainly marked upon the packages.

Duties of the Director. The Director shall in person or by deputy analyze at least one sample of each feeding stuff coming within the requirements of the law, and publish the results with such additional information as circumstances advise. He shall diligently enforce the provisions of the law and, in his discretion, prosecute offenses against the law.

Penalties. The sale or offering for sale of feeding stuffs not properly branded, or containing a smaller percentage of protein and fat than are guaranteed, or of adulterated feeding stuffs, is punishable by a fine not exceeding \$100 for the first, and \$200 for each subsequent offense.

THE GUARANTY.

The law regulating the sale of commercial feeding stuffs is now so generally recognized that practically all feeds shipped into the State are lawfully branded. It not infrequently happens, however, that some feeding stuffs do not equal the guaranty in protein and the dealer is liable to the penalties of the law. To impress upon the jobbers and the manufacturers the necessity of making their goods conform to the guaranties and at the same time afford protection to the honest handler a circular entitled "A Written Guaranty the Dealer's Safeguard" was sent to the Maine trade. In this the following statements are made:

No prosecutions will be made against any handler of feeding stuffs within the State provided he obtain at the time of purchase a *written guaranty* that the goods are in conformity with the law regulating their sale. Failure to obtain such a guaranty on the part of the dealer will be presumptive evidence that he is not sufficiently interested in the purity of the goods which he handles, and unless there are especially extenuating circumstances, the Director will feel it his duty to begin prosecution for a violation of the laws regulating the sale of concentrated commercial feeding stuffs.

Any form of guaranty covering the facts may be used. The guaranty must be signed in ink. The signature of a corporation should be made in the following form. First the legal corporate title of the company; second the autograph of a duly authorized officer of the company; third the title or designation of his office. For example—The Smith-Jones Company, *Chas. R. Doe*, Member of firm.

The guaranty should identify and may be attached to the bill of sale, invoice, bill of lading or other schedule giving the names and quantities of the articles sold. The following or some similar form may be used.

"I (we) the undersigned do hereby guarantee that the commercial feeding stuff manufactured, packed, distributed, or sold by me (us) (specify the same as fully as possible) is in conformity with all the requirements of the Maine law regulating the sale of commercial feeding stuffs.

(Signed in ink.)

.....

(Name⁺ and place of business of wholesale dealer, manufacturer, jobber, or other party.)"

If it is preferred a general guaranty may be given by a manufacturer or dealer for a period of time and the following or a similar form may be used.

"I (we) the undersigned do hereby guarantee that the feeding stuffs packed, distributed or sold by me (us) (state name of consignee) during the year 19— shall be in conformity with the requirements of the Maine law regulating the sale of commercial feeding stuffs."

To be signed as above.

RESULTS OF THE INSPECTIONS FOR 1907-8.

The last bulletin on feeding stuff inspection was published in April, 1907. During the year, April 1907 to April 1908, upwards of 500 samples of feeding stuffs have been analyzed. About 300 of these were taken by the inspector and rather more than 175 were submitted by dealers and manufacturers, and the remainder came from consumers. It sometimes happened that sufficient data was not obtained to make the analysis valuable for publication, and during the year there have been about 50 analyses made that are not reported herewith.

It is evident that there is a very general understanding in the trade, both wholesale and retail, relative to the law regulating the sale of concentrated commercial feeding stuffs and an evident desire on their part to conform. It is very rarely that goods are found offered for sale in the State that are not regularly branded and guaranteed in accord with law and in most instances the goods run well up to guaranty.

In the tables; the general classes of feeding stuffs are grouped according to their protein content, beginning with cottonseed meal. The wheat offals are given at the end of the table. Under each group they are arranged alphabetically, by brand where there is a special brand, or by the name of the manufacturer.

Quite a large number of the samples collected were examined for foreign weed seeds. This matter is discussed at considerable length on pages 189 and following.

The table on pages 161 to 175 gives the results of the analyses. These results are discussed on pages 176 and beyond. Protein was determined in each sample. Fat was determined in one of the samples of each brand taken by the inspector.

DATE OF RECEIPT OF SAMPLES.

The times of drawing the samples are not given in the tables showing the results of the analyses but can be readily ascertained by comparing the sample number with the following list which shows the dates of receipt of the sample.

Samples 2561 to 2590 received in March, April and May, 1907.

Samples 2591 to 2634 received in June, July and August, 1907.

Samples 2635 to 2657 received in September, 1907.

Samples 2658 to 2718 received in October, 1907.

Samples 2719 to 2768 received in November, 1907.

Samples 2769 to 2838 received in December, 1907.

Samples 2839 to 2900 received in January, 1908.

Samples 2001 to 2033 received in January, 1908.

Samples 2033 to 2069 received in February, 1908.

Samples 2069 to 2087 received in March, 1908.

ANALYSES OF SAMPLES OF FEEDING STUFFS.

Name of Feed and Manufacturer or Shipper.	Source of sample.	Protein.		Fat.		Source of sample.
		Found— per cent.	Guaranteed per cent.	Found— per cent.	Guaranteed per cent.	
COTTON SEED MEAL.						
Prime Cotton Seed Meal..... O		36.75	38.61	8.80	8.00	2684
Alabama Cotton Oil Co., Hentsville, Ala.						
Choice Cotton Seed Meal						
American Cotton Oil Co..... D		42.31	41.00	—	9.00	2782
	D	42.88	41.00	—	9.00	2883
	O	42.38	41.00	11.21	9.00	2027
Battle Brand Choice Cotton Seed Meal						
W. P. Battle & Co..... O		42.94	41.00	9.47	9.00	2017
Cotton Seed Meal..... D		40.25	41.00	—	9.00	2739
H. E. Bridges & Co., Memphis, Tenn.... D		43.75	41.00	—	9.00	2761
	D	30.88	41.00	—	—	2762
	C	44.06	41.00	—	9.00	2771
	D	44.38	41.00	—	9.00	2775
	C	41.88	43.00	—	9.00	2776
	C	44.06	41.00	—	9.00	2781
	D	42.81	41.00	—	9.00	2784
	C	46.75	43.00	—	9.00	2817
	C	44.63	41.00	—	9.00	2848
	D	42.82	41.00	—	9.00	2984
	O	42.13	41.00	—	9.00	2896
	O	43.63	41.00	9.50	9.00	2953
	O	43.19	41.00	—	9.00	2048
	O	46.00	41.00	—	9.00	2063
	C	41.75	41.00	—	9.00	2081
Cotton Seed Meal..... O		35.38	36.00	9.03	7.00	2715
F. W. Brode, & Co., Memphis, Tenn.						
Cotton Seed Meal						
Chapine & Co., Boston, Mass..... D		39.25	41.00	—	9.00	2562
Dixie Brand Cotton Seed Meal..... C		40.75	38.00	—	9.00	2689
Humphreys-Godwin Co., Memphis, Tenn O		41.69	38.00	—	9.00	2692
	D	37.88	38.00	—	9.00	2707
	D	42.00	38.00	—	9.00	2720
	D	40.13	38.00	—	7.00	2754
	D	40.63	38.00	—	9.00	2755
	D	43.31	41.00	—	9.00	2758
	D	45.50	41.00	—	9.00	2772
	D	44.19	41.00	—	9.00	2783
	O	45.06	41.00	—	9.00	2787
	C	39.06	41.00	—	8.00	2795
	D	40.00	41.00	—	8.00	2796
	D	45.81	41.00	—	9.00	2804
	D	44.13	41.00	—	9.00	2807
	D	44.38	41.00	—	9.00	2819
	O	43.38	41.00	—	9.00	2825
	C	41.13	41.00	—	9.00	2833
	D	42.38	41.00	—	9.00	2835
	D	40.50	41.00	—	9.00	2844
	O	41.50	41.00	10.15	9.00	2854
	O	40.75	41.00	—	9.00	2859
	D	43.00	41.00	—	7.00	2884

*C, from the feeder; D, from the dealer; M, from the manufacturer; and O, the inspector's sample.

ANALYSES OF SAMPLES OF FEEDING STUFFS.

Name of Feed and Manufacturer or Shipper.	Source of sample.	Protein.		Fat.		Station number.
		Found— per cent.	Guaranteed— per cent.	Found— per cent.	Guaranteed— per cent.	
COTTON SEED MEAL—Continued.						
Dixie Brand Cotton Seed Meal	O	43.25	41.00	8.29	9.00	2890
—Continued	D	42.57	41.00	—	7.00	2910
	D	39.88	41.00	—	9.00	2934
	D	40.25	41.00	—	9.00	2937
	D	39.94	41.00	—	9.00	2950
	C	41.25	41.00	—	9.00	2935
	O	43.13	41.00	—	9.00	2946
	O	43.50	41.00	—	9.00	2957
	D	42.88	—	—	—	2971
	D	40.69	41.00	—	9.00	2973
	O	42.25	41.00	—	9.00	2982
	D	41.25	41.00	—	9.00	2986
	O	42.63	41.00	—	9.00	2992
	O	41.94	41.00	—	9.00	2010
	C	40.07	41.00	—	9.00	2031
	O	42.25	41.00	—	9.00	2087
Green Diamond Brand Choice Cotton Seed Meal.....	O	42.69	41.00	8.21	9.00	2790
Chapin & Co., Boston, Mass.....	C	40.63	41.00	—	9.00	2808
	O	46.69	41.00	—	9.00	2820
	D	42.94	41.00	—	9.00	2829
	D	42.63	41.00	—	9.00	2843
	O	43.13	41.00	8.59	9.00	2939
	O	43.38	41.00	—	9.00	2038
	D	43.07	41.00	—	9.00	2071
Prime Cotton Seed Meal.....	C	42.07	41.00	—	9.00	2054
Hunter Bros. Milling Co., St. Louis, Mo.	D	47.38	41.00	—	9.00	2598
	D	41.38	41.00	—	9.00	2608
	D	42.75	41.00	—	9.00	2743
	D	43.44	41.00	—	9.00	2745
	D	45.75	41.00	—	9.00	2753
	D	43.13	41.00	—	9.00	2769
	D	43.38	41.00	—	9.00	2792
	D	44.00	41.00	—	9.00	2794
	O	43.63	41.00	9.25	9.00	2815
	D	43.63	41.00	—	9.00	2838
	D	40.63	41.00	—	9.00	2936
	O	43.63	41.00	—	9.00	2976
	D	44.44	41.00	—	9.00	2030
Prime Cotton Seed Meal.....	D	42.44	41.00	—	9.00	2839
H. B. Johnson Co., Memphis, Tenn.....	D	41.44	41.00	—	9.00	2846
	O	44.75	41.00	9.52	9.00	2911
	D	42.07	41.00	—	9.00	2014
High Grade Cotton Seed Meal.....	D	46.75	45.00	—	9.00	2563
Oscar Holway Co., Auburn, Me.....	D	47.44	45.00	—	9.00	2576
	D	47.19	45.00	—	9.00	2577
	D	47.00	45.00	—	9.00	2580
	D	49.44	45.00	—	9.00	2588
	D	46.75	45.00	—	9.00	2596
	C	47.63	45.00	—	9.00	2599
	C	46.13	45.00	—	9.00	2605
	C	46.94	45.00	—	9.00	2610

C, from the feeder; D, from the dealer; M, from the manufacturer; and O, the inspector's sample.

ANALYSES OF SAMPLES OF FEEDING STUFFS.

Name of Feed and Manufacturer or Shipper.	Source of sample.	Protein.		Fat.		Station number.
		Found— per cent.	Guaranteed— per cent.	Found— per cent.	Guaranteed— per cent.	
COTTON SEED MEAL—Continued						
Prime Cotton Seed Meal						
Mc Caw Mfg. Co..... D		41.88	41.00	—	9.00	2013
Old Gold Brand Pure Cotton Seed Meal.. D		41.00	41.00	—	9.00	2570
T. H. Bunck, Little Rock, Ark..... D		39.75	41.00	—	9.00	2581
	O	39.50	41.00	9.36	9.00	2668
	C	42.57	41.00	—	9.00	2073
Owl Brand Cotton Seed Meal..... C		36.50	—	—	—	2624
F. W. Brode & Co., Memphis, Tenn.... C		37.69	—	—	—	2625
	C	41.38	—	—	—	2626
	D	35.88	41.00	—	—	2629
	C	33.32	41.00	—	7.00	2635
	O	36.63	41.00	—	7.00	2697
	O	41.63	41.00	—	7.00	2726
	D	46.00	41.00	—	7.00	2741
	D	41.88	41.00	—	7.00	2744
	D	43.00	41.00	—	9.00	2747
	C	45.75	41.00	—	7.00	2738
	D	44.07	41.00	—	7.00	2748
	D	41.19	41.00	—	7.00	2749
	O	42.63	41.00	—	7.00	2750
	O	42.44	41.00	—	7.00	2751
	D	41.32	41.00	—	7.00	2752
	C	40.75	38.00	—	7.00	2780
	D	35.31	41.00	—	7.00	2810
	D	42.44	41.00	—	9.00	2828
	C	42.19	41.00	—	7.00	2831
	D	45.13	41.00	—	7.00	2834
	D	42.88	41.00	—	7.00	2840
	D	44.13	41.00	—	7.00	2842
	D	42.63	41.00	—	7.00	2845
	D	41.75	41.00	—	7.00	2849
	O	41.63	41.00	—	7.00	2860
	O	47.00	41.00	—	7.00	2876
	D	42.00	41.00	—	7.00	2885
	O	44.38	41.00	8.63	7.00	2908
	D	40.44	41.00	—	7.00	2949
	D	41.88	41.00	—	—	2952
	O	41.63	41.00	—	7.00	2965
	D	42.63	41.00	—	7.00	2974
	O	44.63	41.00	—	7.00	2983
	D	44.00	41.00	—	7.00	2011
	D	44.19	41.00	—	—	2052
	O	41.50	41.00	—	7.00	2062
	C	41.75	41.00	—	7.00	2074
Phoenix Brand High Grade Cotton						
Seed Meal..... D		34.63	41.00	—	9.00	2566
D. L. Marshall Co., Boston, Mass..... D		35.38	41.00	—	9.00	2567
	O	37.25	41.00	9.12	9.00	2686
Cotton Seed Meal..... D		41.38	38.63	—	—	2568
Piedmont Oil & Refining Co., Faunsdale						
Ala..... C		37.50	38.63	—	—	2578
	O	40.38	38.63	8.25	—	2669

C, from the feeder; D, from the dealer; M, from the manufacturer; and O, the inspector's sample.

ANALYSES OF SAMPLES OF FEEDING STUFFS.

Name of Feed and Manufacturer or Shipper.	Source of sample.	Protein.		Fat.		Station number.
		Found— per cent.	Guaranteed— per cent.	Found— per cent.	Guaranteed— per cent.	
COTTON SEED MEAL—Continued						
Cotton Seed Meal..... C		42.94	41.00	—	10.00	2778
Planter's Oil Mills, Greenwood, Miss... D		43.88	41.00	—	9.00	2785
Purity Brand Cotton Seed Meal..... D		44.50	41.00	—	9.00	2023
J. F. Walker, Memphis, Tenn..... D		42.82	41.00	—	9.00	2076
Red Arrow Brand Cotton Seed Meal.... O		43.38	41.00	8.04	9.00	2002
Choice Cotton Seed Meal..... C		38.50	—	—	—	2593
Richmond Cotton Oil Co., Memphis, Tenn.						
Choice Cotton Seed Meal..... D		45.13	41.00	—	9.00	2759
Robert's Cotton Oil Co.						
Cotton Seed Meal..... D		40.50	38.50	—	—	2841
J. E. Soper & Co., Boston, Mass..... O		40.38	38.50	—	—	2051
	O	43.07	41.00	9.50	8.00	2059
Star Brand Cotton Seed Meal..... D		35.63	41.00	—	9.00	2564
J. Lindsey Wells Co., Memphis, Tenn... C		31.13	41.00	—	9.00	2579
	C	37.88	41.00	—	9.00	2582
	D	32.75	41.00	—	9.00	2585
	D	33.88	41.00	—	9.00	2586
	D	32.50	41.00	—	9.00	2587
	D	37.88	41.00	—	9.00	2604
	D	37.13	41.00	—	9.00	2609
	D	38.19	41.00	—	9.00	2611
	D	39.38	—	—	—	2612
	D	34.94	—	—	—	2613
	D	40.69	41.00	—	9.00	2615
	D	40.69	—	—	—	2616
	D	39.37	—	—	—	2617
	D	39.37	—	—	—	2618
	D	38.63	41.00	—	9.00	2619
	D	39.63	41.00	—	9.00	2620
	D	37.19	41.00	—	9.00	2621
	D	38.53	41.00	—	9.00	2622
	C	43.44	41.00	—	9.00	2623
	D	39.56	41.00	—	9.00	2627
	D	40.44	41.00	—	9.00	2628
	D	41.06	41.00	—	—	2630
	D	41.00	41.00	—	—	2631
	C	39.25	41.00	—	9.00	2633
	D	33.88	—	—	—	2672
	C	37.06	41.00	—	9.00	2701
	O	41.13	41.00	—	9.00	2714
	D	41.19	41.00	—	7.00	2728
	D	41.75	41.00	—	9.00	2742
	D	41.38	41.00	—	9.00	2746
	D	41.81	41.00	—	9.00	2764
	O	44.63	41.00	—	9.00	2873
	O	41.13	41.00	—	9.00	2921
	O	43.75	41.00	—	9.00	2959
	D	41.32	41.00	7.21	9.00	2970

C, from the feeder; D, from the dealer; M, from the manufacturer; and O, the inspector's sample.

ANALYSES OF SAMPLES OF FEEDING STUFFS.

Name of Feed and Manufacturer or Shipper.	Source of sample.	Protein.		Fat.		Station number.
		Found— per cent.	Guaranteed per cent.	Found— per cent.	Guaranteed— per cent.	
COTTON SEED MEAL—Continued						
Star Brand Cotton Seed Meal—Continued						
	O	41.75	41.00	—	9.00	2977
	C	31.75	41.00	—	9.00	2003
	D	44.13	41.00	—	9.00	2004
	D	46.63	41.00	—	9.00	2034
	C	41.00	41.00	—	9.00	2035
	O	45.69	41.00	—	9.00	2057
Sun Brand Choice Purely Ground Cotton Seed Meal.....	O	39.57	41.00	—	9.00	2734
L. Lindsey Wells Co., Memphis, Tenn....	C	37.13	41.00	—	9.00	2763
	D	38.00	41.00	—	9.00	2765
	O	42.69	41.00	8.08	9.00	2993

COTTON SEED FEED

Creamo Brand Cotton Seed Feed.	O	22.38	22.00	5.58	5.00	2725
Tennessee Fiber Co., Memphis, Tenn.						
Fox Brand Standard Cotton Seed Feed						
Meal F. W. Brode & Co., Memphis, Tenn.	O	21.19	22.00	6.08	5.00	2814
	O	21.13	22.00	—	5.00	2902
Glenwood Brand Cotton Seed Feed						
D. L. Marshall Co., Boston, Mass.	O	25.38	22.00	—	5.00	2695
	D	20.25	22.00	—	5.00	2729
	O	20.75	22.00	4.93	5.00	2737

LINSEED OIL MEAL

Linseed Oil Meal.	D	36.13	36.00	—	1.00	2571
American Linseed Co., Chicago, Ill.	O	34.13	36.00	—	1.00	2654
	O	35.82	36.00	—	1.00	2666
	O	35.25	36.00	—	1.00	2677
	D	36.00	36.00	3.04	1.00	2909
	O	36.38	36.00	—	1.00	2955
	O	36.25	36.00	—	1.00	2995
Old Process Oil Meal.	D	34.63	32.00	—	5.00	2575
American Linseed Co., Chicago, Ill.	O	35.13	32.00	—	5.00	2721
	O	34.63	32.00	7.09	5.00	2855
	O	35.19	32.00	—	5.00	2865
	O	35.38	32.00	—	5.00	2886

C, from the feeder; D, from the dealer; M, from the manufacturer; and O, the inspector's sample.

ANALYSES OF SAMPLES OF FEEDING STUFFS.

Name of Feed and Manufacturer or Shipper.	Source of sample.	Protein.		Fat.		Station number.
		Found— per cent.	Guaranteed per cent.	Found— per cent.	Guaranteed per cent.	
GLUTEN FEED						
Bay State Gluten Feed.....	O	21.00	24.00	3.21	3.00	2723
J. E. Soper & Co., Boston, Mass.....	O	20.50	24.00	—	3.00	2894
Buffalo Gluten Feed.....	O	24.75	23.00	—	2.50	2652
Corn Products Mfg. Co., Chicago, Ill.....	O	24.44	23.00	—	2.50	2660
	O	25.25	23.00	—	2.50	2667
	O	25.25	23.00	—	2.50	2673
	O	22.50	23.00	—	2.50	2683
	O	26.44	24.00	—	2.50	2806
	D	26.19	23.00	—	2.50	2818
	O	25.69	23.00	—	2.50	2822
	C	25.25	—	—	—	2830
	O	25.13	23.00	2.77	2.50	2857
	O	24.25	23.00	—	2.50	2917
	O	26.13	23.00	—	2.50	2047
Clinton Gluten Feed.....	O	19.25	24.00	3.49	2.50	2698
Clinton Sugar Refining Co., Clinton, Iowa	O	16.63	24.00	—	2.50	2702
Continental Gluten Feed.....	O	31.69	33.00	14.39	14.00	2006
Continental Cereal Co.....						
Golden Rod Gluten.....	D	24.25	25.00	—	3.00	2005
Jenks' Gluten Feed.....	O	27.50	27.00	—	7.50	2872
Huron Milling Co.....	O	25.38	27.00	11.06	7.50	2875
	O	29.38	33.00	—	5.00	2049
New England Gluten						
J. E. Soper Co., Boston, Mass.....	D	22.38	24.00	—	9.00	2688
Tiger Gluten Feed.....	O	24.25	25.00	4.11	2.75	2682
St. Louis Syrup and Preserving Co., St. Louis, Mo.						
Warner's Gluten Feed.....	O	25.25	24.00	4.11	2.56	2680
Corn Products Refining Co., Chicago, Ill.	C	24.50	24.00	—	2.50	2797
	O	25.82	24.00	—	2.50	2968
	O	26.07	24.00	—	2.50	2022
DISTILLERS GRAINS						
Ajax Flakes.....	O	32.13	33.00	14.12	12.00	2710
Ajax Milling & Feed Co.....	O	33.25	33.00	—	12.00	2871
	O	31.44	33.00	—	12.00	2979
	O	31.63	33.00	—	12.00	2037
Corn Distillers Grains (Proteina).....	O	27.50	31.00	—	9.00	2670
C. F. Keck & Co., Milwaukee, Wis.....	O	28.75	31.00	10.58	9.00	2718
	C	29.00	31.00	—	9.00	2760
	O	29.63	31.00	—	9.00	2816

C, from the feeder; D, from the dealer; M, from the manufacturer; and O, the inspector's sample.

ANALYSES OF SAMPLES OF FEEDING STUFFS.

Name of Feed and Manufacturer or Shipper.	Source of sample.	Protein.		Fat.		Station number.
		Found— per cent.	Guaranteed— per cent.	Found— per cent.	Guaranteed— per cent.	
DISTILLERS GRAINS—Continued.						
Corn Distillers Grains (Proteina)—	M	28.00	31.00	—	9.00	2603
Continued	O	28.75	31.00	—	9.00	2852
	O	28.63	31.00	—	9.00	2891
	O	28.63	31.00	10.94	9.00	2065
	C	26.82	31.00	—	9.00	2070
Corn Protegran	D	25.32	33.00	11.65	14.00	2565
The Dewey Bros. Co., Blanchester, Ohio	D	24.63	36.00	—	12.00	2569
	D	25.00	—	—	—	2592
Fourex Grains	O	31.00	33.00	13.41	11.00	2709
J. W. Biles Co., Cincinnati, O.	O	33.75	33.00	13.36	11.00	2975
BREWERS GRAINS AND MALT SPROUTS						
Pure Dried Brewers Grains	D	25.19	27.00	—	7.00	2799
Atlantic Export Co., Milwaukee, Wis.		24.13	25.00	—	7.00	2708
Brewers Grains	O	23.75	25.00	—	7.00	2589
Chas. A. Krause Grain Co., Milwaukee, Wis.		24.13	25.00	—	7.00	2708
Malt Sprouts	O	28.38	25.00	3.62	2.00	2803
American Malting Co.						
MISCELLANEOUS REINFORCED FEEDS						
Badger Dairy Feed	M	18.13	18.00	—	4.50	2836
Chas. A. Krause Milling Co., Milwaukee, Wis.	C	17.88	18.00	—	4.50	2053
Daisy Dairy Feed	D	11.94	16.00	—	3.00	2634
Great Western Cereal Co., Chicago, Ill.	D	12.31	16.00	—	3.00	2649
	O	13.44	16.00	3.84	3.00	2658
	O	13.38	16.00	—	3.00	2662
	O	12.07	16.00	—	3.00	2736
	D	13.94	16.00	—	3.00	2786
	O	13.00	16.00	—	3.00	2802
	O	12.25	16.00	—	3.00	2874
	O	14.57	16.00	—	2.00	2056
	D	14.63	14.00	—	3.00	2077
Hammond Dairy Feed	O	15.32	17.00	5.06	3.00	2705
Western Grain Products Co., Hammond, Indiana.						
H. J. Flax Feed	M	23.31	17.34	—	17.37	2632
Henry Jennings, Boston, Mass.	C	15.00	17.34	—	17.37	2636
	O	17.44	17.34	—	17.37	2656
	O	15.82	17.34	—	17.37	2665
	O	16.63	17.34	15.65	17.37	2678

C, from the feeder; D, from the dealer; M, from the manufacturer; and O, the inspector's sample.

ANALYSES OF SAMPLES OF FEEDING STUFFS.

Name of Feed and Manufacturer or Shipper.	Source of sample.	Protein.		Fat.		Station number.
		Guaranteed per cent.	Guaranteed per cent.	Found— per cent.	Guaranteed per cent.	
MISCELLANEOUS REINFORCED FEEDS—Continued.						
H. J. Flax Feed—Continued	O	17.88	17.34	—	17.37	2717
	D	14.13	17.34	—	17.37	2773
	D	17.50	17.34	—	17.37	2774
	O	17.88	17.34	17.81	17.37	2821
	O	14.50	17.34	—	17.37	2826
	O	14.75	17.34	—	17.37	2864
	O	17.88	17.34	—	17.37	2920
	O	15.13	17.34	—	17.37	2943
	O	15.13	17.34	—	17.37	2944
	M	16.75	—	13.92	—	2036
Merritt's Jersey Cow Feed.....	C	17.13	—	—	—	2793
E. Merritt & Sons, Houlton, Me.....	M	21.38	—	—	—	2809
	M	17.25	—	—	—	2951
Premium Calf Meal						
American Cereal Co., Akron, O.....	M	14.07	14.50	5.94	4.50	2597
Protena Dairy Feed.....	O	19.38	20.00	—	3.50	2060
Purina Mills, St. Louis, Mo.						
Rye Protegran.....	O	18.44	21.00	8.03	6.00	2735
Dewey Bros., Co., Blanchester, O.....	O	19.19	21.00	9.05	6.00	2009
Union Grains.....	D	21.94	—	—	—	2595
J. W. Biles Co.....	O	22.82	24.00	—	7.00	2657
	O	22.00	24.00	—	7.00	2791
	O	22.38	24.00	6.13	7.00	2878
	O	23.57	24.00	—	7.00	2996

MOLASSES AND SUGAR FEEDS

Molac Molasses Dairy Feed.....	O	13.63	11.00	3.43	3.00	2892
Quaker Oats Co., Chicago, Ill.....	O	16.50	16.00	5.81	3.00	2912
	O	17.00	15.50	4.24	3.00	2018
Sucrene Dairy Feed.....	O	17.19	16.50	—	3.50	2675
American Milling Co., Chicago, Ill.....	O	17.63	16.50	7.22	3.50	2722
	C	17.63	16.50	—	3.50	2756
	O	18.13	16.50	—	3.50	2915
	O	18.63	16.50	—	3.50	2851
	O	16.50	16.50	—	3.50	2960
	C	18.75	16.50	—	3.50	2072
Sucrene Horse Feed.....	D	13.32	13.50	—	3.50	2757
American Milling Co., Chicago, Ill.						

C, from the feeder; D, from the dealer; M, from the manufacturer; and O, the inspector's sample.

ANALYSES OF SAMPLES OF FEEDING STUFFS.

Name of Feed and Manufacturer or Shipper.	Source of sample.*	Protein.		Fat.		Station number.
		Found— per cent.	Guaranteed— per cent.	Found— per cent.	Guaranteed— per cent.	
CORN, BARLEY & OAT FEED.						
Ideal Corn, Barley & Oat Feed..... O E. T. & H. J. Ide, St. Johnsbury, Vt.	O	7.44	9.00	2.81	3.28	2954
CORN AND OAT FEEDS						
Boss Chop Feed..... O Great Western Cereal Co..... O	O O	9.44 9.07	8.50 8.50	— 5.00	3.50 3.50	2779 2967
Chop Feed David Stott, Detroit, Mich..... O	O	9.19	—	4.48	—	2990
Fine Ground Eclipse Feed..... O Husted Milling & Elevator Co., Buffalo, N. Y.	O	10.00	9.00	4.14	4.00	2711
Empire Feed for Stock..... C Empire Mills, Orlean, N. Y..... O O D O O	C O O D O O	7.19 8.00 8.13 8.94 8.82 8.32	7.68 7.68 7.68 — 7.63 7.63	— — — — — 3.97	3.97 3.97 3.97 — 3.97 3.97	2606 2693 2724 2832 2900 2964
Haskell's Stock Feed..... O W. H. Haskell & Co., Toledo, O..... O O O	O O O O	10.25 9.07 9.25 8.88	8.00 8.00 8.00 8.00	— 7.64 — —	6.25 6.25 4.00 4.00	2659 2674 2898 2045
Horse Feed..... O Buffalo Cereal Co..... O	O O	12.50 12.57	12.00 12.00	4.58 —	4.50 4.50	2727 2897
Husted Stock Feed..... O Husted Milling Co., Buffalo, N. Y.	O	9.38	8.00	5.24	4.00	2050
O. O. Feed..... C E. S. Woodworth & Co., Minneapolis, Minn.	C	11.25	10.51	—	5.75	2766
Pearl Cooked Horse & Cow Feed..... O Flint Mills Co., Milwaukee, Wis..... O O	O O O	8.07 8.63 10.13	8.00 8.00 8.00	3.38 — —	3.00 3.00 3.00	2681 2919 2930
Schumachers Stock Feed..... O Quaker Oats Co., Chicago, Ill..... O O O O O O O	O O O O O O O	10.63 11.31 11.50 10.25 11.25 12.07 11.44	10.00 10.00 10.00 10.00 10.00 10.00 10.00	4.48 — — — — — —	4.00 4.00 4.00 4.00 4.00 4.00 4.00	2671 2803 2823 2850 2895 2021 2067
Victoria Chop..... O Royce & Coon Grain Co., Bowling Green, Ohio..... O	O O	9.13 7.07	8.11 8.11	— 3.38	3.05 3.05	2069 2893

C, from the feeder; D, from the dealer; M, from the manufacturer; and O, the inspector's sample.

ANALYSES OF SAMPLES OF FEEDING STUFFS.

Name of Feed and Manufacturer or Shipper.	Source of sample.*	Protein.		Fat.		Station number.
		Found— per cent.	Guaranteed per cent.	Found— per cent.	Guaranteed per cent.	

CORN AND OAT FEEDS—Continued.

Vigo Corn and Oat Feed..... D Indiana Milling Co.	8.25	10.00	—	4.00	2602
Wirthmore Stock Feed Chas. M. Cox Co., Boston, Mass..... O	9.19	10.00	6.47	4.00	2767

HOMINY FEEDS

Star Hominy Feed Toledo Elevator Co., Toledo, O..... D	8.88	7.00	—	6.50	2770
Susquehanna Hominy Chop..... O Oneonta Milling Co.	10.94	10.00	—	7.00	2028
Wirthmore Hominy Feed Chas. M. Cox Co., Boston..... O	10.50	10.50	—	7.50	2043

RICE FEED

Ground Rice..... O Quaker Oats Co., Chicago, Ill.	8.00	9.61	0.26	0.38	2768
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POULTRY FEEDS

Crescent Chick Feed..... O	10.00	—	—	—	2583
Dry Mash Feed..... O Park & Pollard Co.	19.00	23.00	3.78	3.00	2889
Purina Baby Chick Feed..... D Ralston Purina Mills Co., St. Louis, Mo.	11.19	11.00	—	3.50	2594
Schumachers Scratching Feed..... O Quaker Oats Co., Chicago, Ill.	9.75	10.50	3.03	3.00	2906
Sun Chick Starter..... O	9.50	—	—	—	2584

C, from the feeder; D, from the dealer; M, from the manufacturer; and O, the inspector's sample.

ANALYSES OF SAMPLES OF FEEDING STUFFS.

Name of Feed and Manufacturer or Shipper.	Source of sample.*	Protein.		Fat.		Station number.
		Found— per cent.	Guaranteed— per cent.	Found— per cent.	Guaranteed— per cent.	
WHEAT OFFALS						
Acme Feed.....	O	16.57	16.00	—	4.00	2856
Acme Milling Co., Indianapolis.....	O	16.75	15.00	—	4.00	2877
Apex Fancy Mixed Feed						
Allen Baker Corn Co., St. Louis.....	O	17.44	14.00	—	4.00	2025
Gem Mixed Feed						
Allen Baker Corn Co., St. Louis.....	O	17.69	14.00	—	4.00	2653
	O	16.44	14.00	—	4.00	2927
	O	17.32	14.00	—	4.00	2961
Trojan Middlings Pure Wheat Feed						
Allen & Wheeler Co., Troy, O.....	O	16.38	—	—	—	2942
Bran						
Ansted & Burk Co., Springfield, O.....	O	14.88	14.00	—	3.00	2713
Middlings.....	O	16.94	15.00	—	4.00	2881
Ansted & Burk Co., Springfield, O.....	O	17.13	15.00	—	4.00	2931
Mixed Feed.....	O	16.32	—	—	—	2861
Ansted & Burke Co., Springfield, O.....	O	16.57	—	—	—	2932
Pure Wheat Bran.....	O	16.75	16.00	—	4.00	2055
Ashton Flouring Mills.						
Badger Standard Middlings.....	O	18.69	16.50	—	4.00	2907
Badger Crittenden Milling Co., Milwaukee, Wis.						
Bull's Eye Mixed Feed						
Blish Milling Co., Saymour, Ind.	O	15.32	—	4.31	—	2858
	O	16.25	—	—	—	2998
Gopher Middlings						
Brooks Elevator Co.....	O	17.19	16.00	—	5.00	2958
Purity Pure Winter Wheat Bran						
Cairo Milling Co.....	O	15.50	14.00	—	3.50	2058
Clover Leaf Bran						
Seymour-Carter.....	O	14.38	14.30	5.61	5.20	2966
Erie Winter Mixed Feed						
Chapin & Co., Boston.....	O	17.82	—	—	—	2956
Pure Wheat Bran						
Chapin & Co., Boston.....	O	14.69	14.00	—	3.00	2019
Jersey Bran Pure Wheat						
Geo. C. Christain, Minneapolis.....	O	14.88	15.00	—	4.00	2926
Bran						
H. C. Cole Milling Co.....	O	16.38	14.50	—	3.75	2068

C, from the feeder; D, from the dealer; M, from the manufacturer; and O, the inspector's sample.

ANALYSES OF SAMPLES OF FEEDING STUFFS.

Name of Feed and Manufacturer or Shipper.	Source of sample.*	Protein.		Fat.		Station number.
		Found— per cent.	Guaranteed— per cent.	Found— per cent.	Guaranteed— per cent.	
WHEAT OFFALS—Continued.						
Middlings H. C. Cole Milling Co.	D	18.07	16.00	—	4.50	2985
Winter Wheat Bran. Wm. A. Coombs Milling Co., Coldwater, Mich.	O	15.63	14.00	—	3.00	2947
Winter Wheat Mixed Feed, Wm. A. Coombs Milling Co., Coldwater, Mich.	O	15.44	—	—	—	2690
	O	15.32	15.00	—	3.00	2691
	O	16.13	—	—	—	2948
Columbia Mixed Feed.	D	15.50	—	—	—	2600
Chas. M. Cox Co., Boston.	O	15.38	—	—	—	2887
	O	15.25	—	—	—	2962
Adrian Pure Winter Wheat Bran.	O	15.00	—	—	—	2015
Detroit Milling Co., Detroit						
Winter Wheat Bran.	O	14.50	—	—	—	2731
Dow & King, Pittsfield, Ill.						
Bran.	O	14.57	—	—	—	2999
Dow & King, Pittsfield, Ill.						
Middlings.	O	16.63	—	—	—	2732
Dow & King, Pittsfield, Ill.						
Boston Mixed Feed.	D	16.25	16.00	—	4.50	2798
Duluth Superior Mills Co., Duluth.	O	16.19	16.00	—	4.50	2869
	O	16.19	16.00	—	4.50	3000
Bran Dwight Flour Mills, Minneapolis.	O	13.88	12.00	—	3.00	2868
Eaco Mixed Feed.	O	16.82	15.00	—	3.00	2866
Everett, Aughenbach & Co., Waseca, Minn.	O	16.94	15.00	—	3.00	2941
Ideal Mixed Feed.	O	15.69	—	—	—	2903
Fergus Flour Mills Co., Fergus Falls, Minn.						
Frontier Pure Wheat Mixed Feed.	O	17.13	14.00	—	3.00	2020
Flint Mills Co., Milwaukee.						
Mixed Vermont Feed.	O	16.38	15.00	—	4.00	2676
Flint Mills Co., Milwaukee.	O	17.00	15.00	—	4.00	2685
	O	17.19	14.00	—	4.00	2879
	O	16.94	14.00	—	4.00	2040
	O	17.13	14.00	—	4.00	2933
Bran & Shorts.	O	17.25	—	—	—	2024
Glen Villin Roller Mills						
Sanford Mixed Feed.	O	15.88	—	—	—	2913
Griswold & Mackinnon, St. Johnsbury, Vt.						
Pure Winter Wheat Bran.	D	15.94	14.00	—	—	2700
Hunter Bros. Milling Co., St. Louis, Mo.	O	16.56	14.00	—	3.50	2899

C, from the feeder; D, from the dealer; M, from the manufacturer; and O, the inspector's sample.

ANALYSES OF SAMPLES OF FEEDING STUFFS.

Name of Feed & or Shi	Manufacturer	Source of sample.	Protein.		Fat.		Station number.
			Found— per cent.	Guaranteed— per cent.	Found— per cent.	Guaranteed— per cent.	
WHEAT OFFALS—Continued.							
Hunter,s Matchless Mixed Feed	O		14.69	15.00	—	4.00	2026
Hunter Bros. Milling Co., St. Louis, Mo							
Hunter's Sunshine Mill Feed	O		15.06	15.00	—	4.00	2704
Hunter Bros. Milling Co., St. Louis, Mo.	O		17.69	15.00	—	4.00	2882
	O		17.32	15.00	—	4.00	2938
	D		16.50	15.00	—	4.00	2811
Mixed Feed	O		14.50	—	—	—	2719
Huron Milling Co., Harbor Beach, Mich.							
Kehlror's Mill Feed	D		17.19	14.00	—	4.00	2800
Kehlror's Flour Mills Co., St. Louis, Mo.	O		16.57	14.00	5.52	4.00	2016
Fancy Mixed Feed	O		17.38	—	—	—	2923
Kelley Milling Co., Kansas City, Mo.	O		18.00	—	—	—	2972
Bran	D		15.75	—	—	—	2601
Kelley & Lysle Milling Co., Leavenworth Kansas.							
Snowflake Middlings	O		18.50	—	—	—	2969
Lawrenceburg Roller Mills Co.	O		15.82	—	—	—	2928
	O		15.88	—	—	—	2039
Gold Heart Mixed Feed	O		16.50	16.50	—	5.30	2703
Missouri Valley Milling Co.	O		17.38	16.50	—	5.30	2924
	O		16.88	16.50	—	5.30	2001
Bran	O		14.50	—	—	—	2929
Morris City Mills, Morris, Minn.							
Bran	O		15.63	14.25	—	4.00	2916
Northwestern Consolidated Co.							
Pillsbury's Pure and Unadulterated Wheat							
Bran	O		15.82	13.00	—	4.00	2922
Pillsbury, Minneapolis, Minn.	O		15.25	13.00	—	4.00	2940
Pillsbury's B. Middlings							
Pillsbury, Minneapolis	O		17.38	14.00	—	4.50	2901
Champion Mixed Feed	O		15.69	—	—	—	2945
Portland Milling Co.	O		15.75	—	—	—	2991
King Feed	O		16.13	14.00	—	3.70	2997
R. P. Moore Milling Co.							
Bran	O		16.32	—	—	—	2042
Quality Mills, Enterprise, Kans.							
Buck Eye Mixed Feed	O		15.32	13.00	—	4.00	2694
Quaker Oats Co., Chicago, Ill.	O		16.38	13.00	4.55	4.00	2863
	D		16.07	13.00	—	4.00	2086
Bran	O		16.00	—	—	—	2032
Red Lake Falls Milling Co.							

C, from the feeder; D, from the dealer; M, from the manufacturer; and O, the the inspector's sample.

ANALYSES OF SAMPLES OF FEEDING STUFFS.

Name of Feed and Manufacturer or Shipper.	Source of sample.	Protein.		Fat.		Station number.
		Found— per cent.	Guaranteed— per cent.	Found— per cent.	Guaranteed— per cent.	
WHEAT OFFALS—Continued.						
Occident Mixed Feed..... O Russell-Miller Milling Co.		17.69	15.00	—	4.00	2041
Gold Mine Mixed Feed..... O Sheffield-King Milling Co., Minneapolis, Minn.		16.63	17.00	—	4.50	2789
Pure Winter Wheat Bran..... O Shellabarger Mill & Elevator Co., Salem, Kansas..... O		17.69	14.00	—	3.50	2788
		18.75	14.00	—	3.50	2853
Star Middlings..... O Star & Crescent Milling Co.		17.57	15.00	—	4.00	2075
Bran..... O F. W. Stock & Son, Hillsdale, Mich.		15.07	—	—	—	2867
Stock's Monarch Mixed Feed..... O F. W. Stock & Son, Hillsdale, Mich.		16.19	—	—	—	2870
Bran..... O David Stott, Detroit, Mich.		16.63	—	—	—	2987
Stott's Climax Middlings..... O David Stott, Detroit, Mich.		19.25	—	—	—	2989
Stott's Honest Mixed Feed..... O David Stott, Detroit, Mich..... O		16.63	—	—	—	2988
		17.00	—	—	—	2044
Farmer's Favorite Winter Wheat..... O Vinco Mixed Cow Feed..... O		14.75	—	—	—	2699
		16.00	—	—	—	2914
Valley City Milling Co., Grand Rapids, Mich..... O		15.56	—	—	—	2980
Michigan Winter Wheat Bran..... O Valley City Milling Co. Grand Rapids,... Mich.		14.00	—	—	—	2591
Vinco Bran..... O Valley City Milling Co., Grand Rapids, Mich..... O		15.07	—	—	—	2981
		14.94	—	—	—	2994
Voight's Choice Winter Wheat Bran..... O Voight Milling Co., Grand Rapids..... O		14.38	—	—	—	2590
		15.32	—	—	—	2904
		15.07	—	—	—	2888
		15.13	—	—	—	2905
		15.13	—	—	—	2978
Mill Run Brand Mixed Feed..... O Waggoner Gates Milling Co.		16.50	—	—	—	2046
Unadulterated Wheat Bran..... D Washburn Crosby Co., Minneapolis.		15.50	—	—	—	2812
Unadulterated Coarse Wheat Bran..... O Washburn-Crosby Co., Minneapolis.... D		14.63	15.00	—	4.00	2925
		14.50	15.00	—	4.00	2012
Snow's Flaky Bran..... O E. S. Woodworth & Co.		15.69	14.25	—	4.10	2061

ANALYSES OF SAMPLES OF FEEDING STUFFS.

Name of Feed and Manufacturer or Shipper.	Source of sample.	Protein.		Fat.		Station number.
		Found— per cent.	Guaranteed— per cent.	Found— per cent.	Guaranteed— per cent.	
ADULTERATED WHEAT OFFALS						
Blue Grass Mixed Feed.	O	10.13	10.00	2.65	2.50	2661
A. Waller & Co., Henderson, Ky.	O	10.19	10.00	—	2.50	2679
	O	9.38	10.00	—	2.50	2730
	O	10.56	10.00	—	2.50	2813
	O	10.50	10.00	—	2.50	2033
	O	9.88	10.00	—	2.50	2064
Jersey Mixed Feed.	O	9.25	10.00	—	2.00	2733
Indiana Milling Co.	O	11.69	12.05	2.82	3.20	2963
BEEF SCRAPS						
Bowker's Fresh Ground Beef Scrap.	O	52.50	40.00	13.95	5.00	2696
The Bowker Co., Boston, Mass.						
Breck's Ground Beef Scrap.	O	47.38	45.00	16.90	12.00	2918
Breck						
Dow's Ground Beef Scrap.	O	45.06	45.00	—	15.00	2716
John C. Dow Co.	O	42.38	50.00	—	15.00	2654
	O	43.13	45.00	22.68	12.00	2824
Ground Bone & Scrap.	O	39.56	39.10	29.30	35.67	2827
S. H. Nash, Bangor, Me.						
Beef Scrap.	O	46.69	40.00	—	15.00	2655
Portland Rendering Co., Portland.	O	45.32	40.00	—	15.00	2664
	O	42.94	40.00	15.10	15.00	2687
	O	37.32	40.00	—	15.00	2862
	O	38.25	40.00	—	15.00	2880
	D	40.38	40.00	—	15.00	2083
Bone & Meat Meal for Poultry.	O	38.00	40.00	—	8.00	2663
Portland Rendering Co., Portland,	O	38.57	40.00	12.33	8.00	2007
Swift's Lowell Edible Bone Meal.	O	24.13	10.00	—	5.00	2712
Swift's Lowell Fertilizer Co., Boston, Mass.						
Swift's Lowell Edible Bone Meal for Cattle and Poultry.	O	24.75	10.00	0.20	5.00	2008
Swift's Lowell Fertilizer Co., Boston, Mass.						

COTTONSEED MEAL.

Analyses pages 161 to 165.

Cottonseed meal is a by-product from the manufacture of cottonseed oil. After the cotton has been taken from the seed in the cotton gin, the remaining down or "linters" and the hard black seed coats or hulls are removed by machinery. The remainder of the seed is cooked and the oil expressed by high pressure. The resulting cottonseed cake is ground into the bright, yellow cottonseed meal of commerce.

GRADES OF COTTONSEED MEAL.

The shippers of cottonseed meal up to about two years ago guaranteed 43 per cent protein and 9 per cent fat. A large part of the cottonseed meal is used for fertilizing purposes and its nitrogen is guaranteed in the form of ammonia. Most of the meal sold in Maine in 1907-8 was guaranteed 41 per cent protein and 7 or 9 per cent fat.

Two grades of meal, "choice and prime," were shipped from the crop of 1907. The grade "extra prime" of the 1906 crop was not shipped in 1907-8.

Choice cottonseed meal is finely ground, perfectly sound and sweet in odor, free from excess of lint and hulls and by analysis shows nitrogen equivalent to at least 8 per cent ammonia, equivalent to 41.15 per cent protein.

Prime cottonseed meal is finely ground, of sweet odor, reasonably bright in color and by analysis contains nitrogen equivalent to at least 7 per cent ammonia, equivalent to 36 per cent protein.

Meal below prime in quality is classed as "*Off*" meal and includes any cottonseed meal which is distinctly deficient in any of the requirements of prime quality, either in color, odor, texture or analysis, or all.

The hulls and cotton which should be removed from the seed before it is crushed and pressed, have but little feeding value. A little of these materials has always been present in the meal; with the present processes of manufacture, there is probably more of these materials present than formerly. The demand from feeders for cottonseed meal has so increased the value of this by-product that the temptation to include as much of the

hulls and cotton as practicable is great. The processes of manufacture in different mills also vary so that the meal from some mills will contain more of the dark hulls which gives a dark colored meal of inferior feeding value.

Strictly first-class cottonseed meal is always bright and yellow and should have a pleasant nutty flavor. Not all dark colored cottonseed meal is necessarily adulterated. The spontaneous heating of the seed in the field, or over cooking of the "meats" may render the meal dark in color without changing its composition. Such meal is not first quality, however, and should be sold at a lower price.

A SIMPLE TEST FOR QUALITY.

Because of the differences in the behavior of hulls, the finely ground cottonseed meal, and the cotton when wet up with water, the presence of undue amounts of hull and cotton can be readily detected by stirring a little of the meal in a tumbler of water. The hulls, unless they are very finely ground, settle out first and on top of these will come the finer portions of the meal, and finally the cotton by itself. By testing a meal of high grade in comparison with a poor quality meal, one can so familiarize himself with this test as to quite readily and accurately distinguish the quality of cottonseed meal.

ANALYSIS OF DEALERS SAMPLES.

The cottonseed meal situation in Maine in 1906-7 was very unsatisfactory, chiefly because of the great damage to the cotton crop of 1906 by the severe storms in the Gulf States. Fearing that conditions might again lead to the shipping of low grade meal the following circular was sent to Maine dealers in October, 1907.

"The cottonseed meal situation in the fall of 1906 and winter of 1907 was very unsatisfactory. Something has been done towards correcting this matter through the Interstate Cottonseed Crushers Association. Also many shippers are apparently desirous of doing the right thing. There is reason however, to fear that low grade goods may be shipped into the State again this year. To guard against this and to protect the dealer, the following suggestion is made.

If immediately on the arrival of a car, the dealer will open not less than 6 packages and take samples in accordance with directions which will be sent on application and forward to me by prepaid express, a prompt free analysis will be made of the sample and the result reported promptly. In case the goods should not prove to be up to the guaranty under which they were sold, the dealer will then have a chance to immediately put in a claim for rebate which I am confident will, under these conditions, be allowed by a reputable shipper. Furthermore the dealer can change the guaranty on the packages so it shall be in accord with fact. He will thus protect himself from imposition or mistake on the part of the shipper, and from the penalties of violating the feed inspection law, and protect his customers as well.

In case my deputy should find samples of cottonseed meal bought in carload lots that should fall below the guaranty, *samples of which had not been submitted to me as above outlined*, I should feel it my duty to at once institute proceedings against the dealer for violation of the law regulating the sale of concentrated commercial feeding stuffs.

CHAS. D. WOODS, Director."

In response to this a very unusual number of samples were submitted by dealers, particularly early in the season before the quality of the shipments from the 1907 crop was assured.

RESULTS OF THE ANALYSIS.

The results of the analysis show that practically all of the samples received from the crop of 1907 were of good quality. All of the samples numbered lower than 2719, with the exception of those ranging from 2001 to 2087, were from the 1906 crop. The other numbers were for the most part from the 1907 crop. It will be noted that these analyses ran for the most part well up to the guaranty. It has not been unusual during the present winter for cottonseed meals to carry as high as 44, 45, 46 and even 47 per cent protein and only in rare instances have they fallen below 40 per cent protein. In case the goods have run below the guaranty of 41 per cent, the dealers have in most instances changed the guaranties to accord with fact, before the good have been distributed.

COTTONSEED FEED.

Analyses page 165.

A few lots of cottonseed feed have been found in the State. For the most part these were reasonably in accord with the guaranty of 22 per cent protein and 5 per cent fat. The differences in price between choice cottonseed meal and these low grade cottonseed feeds have been slight. They are not economical feeds at any price which they have been or are likely to be offered. A ton of choice cottonseed meal carrying 41 per cent protein carries 680 pounds of digestible protein. A ton of cottonseed feed with an analysis of 22 per cent protein would only have 340 pounds of digestible protein; in other words as a source of protein, one pound of choice cottonseed meal is equal to two pounds of cottonseed feed.

LINSEED MEAL.

Analyses page 165.

Linseed meal is made by grinding flax seed from which the oil has been more or less completely removed. Most of the oil meal now on the market is new process meal from which the fat has been removed by the use of naphtha. New process linseed meal is generally somewhat lower in fat and higher in protein than old process. The amount of linseed oil meal found in the market in Maine has considerably increased. This is probably due to the advance of price of the cottonseed meal which was relatively greater than that of linseed. Linseed oil meal is a safer and in some respects a better feed than cottonseed meal. The small amount available and its formerly higher price, led to its lessened use. Apparently considerably more of the meal was used in Maine in 1907-8 than for many preceding years.

GLUTEN MEALS AND FEEDS.

Analyses page 166.

Gluten meals and feeds are the by-products left in the manufacture of starch and glucose from Indian corn. Corn consists largely of starch. The waste product in the manufacture of starch and sugar is relatively richer in oil and protein than is corn. Most factories remove part of the corn oil from the

waste so that nearly all the gluten meals carry less oil than they did a few years ago.

Gluten feeds differ from gluten meals in that they contain considerably more of the corn bran and hence relatively less protein, fat and digestible carbohydrates, and more of the indigestible woody fiber. Gluten products which were formerly quite extensively used in Maine, came to be regarded as rather unsatisfactory forms of concentrated feeds, chiefly because of their uneven composition.

Buffalo Gluten feed is apparently much more largely used in the State than the other brands and this is sold under a guaranty of 23 per cent protein and $2\frac{1}{2}$ per cent fat, which analysis is well maintained. In only one instance was a sample found running below this guaranty and then only slightly.

Bay State Gluten feed cannot be depended upon to carry much more than 20 per cent protein, and the *Clinton Gluten feed* of the Clinton Sugar Refining Company is even poorer than this. Only three samples of *Jenks gluten feed* were found and these were sold under two guaranties,—one was 27 per cent protein and $7\frac{1}{2}$ per cent fat, and the other 36 per cent protein and 5 per cent fat. One sample, with the lower guaranty, was up to the guaranty;—the meal carrying the high guaranty fell far below, and the guaranty was changed by the dealer but not until after considerable of the meal had been sold.

Warner's Gluten feed is made by the people that make Buffalo gluten feed and closely resembles it in guaranty and analysis.

COLORING MATTER AND ACID IN GLUTEN FEEDS.

Because of some complaint and special information received, the gluten feeds on sale in Maine were examined both for acidity and for foreign coloring matters with the results which follow. The acidity was determined by titrating with a tenth normal sodium hydrate and in each instance two grams of the material were used for the determination. The Sostegni and Carpentieri method was used for testing for coal tar color. The results are given in the table which follows. It will be noted that 3 samples of corn meal were also tested as standards for comparison.

ACIDITY AND COLOR OF GLUTEN MEALS AND FEEDS.

Sta. No.	Brand	Acidity %	Appearance	Color
2723	Bay State	.015	Somewhat dark	No coal tar color found
2894	" "	.033	" "	No coal tar color found
2652	Buffalo	.193	" "	Not tested
2660	"	.118	Reddish yellow	Not tested
2667	"	.193	Somewhat dark	Coal tar color found
2673	"	.118	Reddish yellow	Not tested
2683	"	.100	Slightly dark	Not tested
2806	"	.055	"	Not tested
2818	"	.068	Reddish yellow	Not tested
2822	"	.053	Slightly dark	Not tested
2830	"	.110	Reddish	Not tested
2857	"	.163	Reddish	Coal tar color found
2917	"	.123	Slightly dark	Coal tar color found
2047	"	.063	Reddish yellow	Coal tar color found
2698	Clinton	.023	Natural	No coal tar color found
2702	"	.030	"	No coal tar color found
2801	Golden Rod	.010	Quite dark	No coal tar color found
2005	" "	.013	Quite dark	Not tested
2875	Jenks	.025	Yellow	Coal tar color found
2872	" (Meal)	.038	"	Not tested
2049	" "	.055	"	Coal tar color found
2688	New England	.010	Light reddish yellow	Coal tar color found
2682	Tiger	.140	Very slightly dark	No coal tar color found
2680	Warner's	.070	Reddish	Not tested
2797	"	.063	"	Not tested
2022	"	.055	"	Coal tar color found
-	Corn meal (coarse)	.020	Natural	No coal tar color found
-	" "	.020	"	Not tested
-	" " (bolted)	.008	"	Not tested

All of the samples in above table were tested qualitatively for sulphuric acid and hydrochloric acid. All the samples, including the corn meals, exhibited traces of sulphuric acid but those glutens which gave the highest percentages of total acidity usually seemed to carry more sulphuric acid than the others. The greater part of the acid present in excess, however, was hydrochloric, which varied considerably in the different samples, the variations for the most part, agreeing quite closely with the variations in total acidity.

It will be noted that the Buffalo and Warner's gluten feeds made respectively by the Corn Products Manufacturing Co., and the Corn Products Refining Co. of Chicago, and the Tiger gluten feed, made by the St. Louis Preserving Co., carried in many instances inexcusable and dangerous amounts of acid,

apparently showing that sufficient attention was not given in the manufacture of the goods to prevent an excess of acid accumulating. A feed containing such amounts of free mineral acids as these goods carried would be apt to be destructive to the teeth and harmful to the digestive apparatus of the animals. The coloring matter used is apparently not one of those that are allowed by the U. S. Board of Food and Drug Inspection. It is apparently free from arsenic and is not a particularly dangerous material. There seems, however, to be nothing gained by its addition to the goods. Its use is to be deprecated and is contrary to the National Food and Drug Act.

DISTILLERS GRAINS.

Analyses pages 166 and 167.

In composition, dried distillers grains resemble the gluten feeds. They are made chiefly from corn from which the starch is removed by fermentation. They are more bulky than the gluten feeds and when of good quality run higher in protein. A feeding test with distillers grains was reported in bulletin 92 of this Station. It will be noted than in the analyses the goods fall somewhat below their guaranty in protein. The Ajax Flakes carry on the average about 32 per cent protein and Keck's Corn Distillers grain carry a scant 29 per cent protein. In one instance both Ajax Flakes and Fourex grains were above their guaranteed percentage of protein. Corn Protogran was apparently not sold very much in the State. The inspector did not find it at all. The three samples sent in by dealers showed it to carry about 25 per cent protein. It was sold to them under different guaranties, but the guaranties were changed to accord with fact. All of these distillers grains with the exception of the Corn Protogran, carried practically as much *total* fat and protein as the guaranties called for; while for the most part they were somewhat below in protein, they over-ran in fat. As was to be expected no weed seeds were found in any of the samples of distillers grains.

BREWERS GRAINS.

Analyses page 167.

Rather more dried brewers grains were apparently used in Maine than in preceding years. It will be noted that these goods for the most part carried about 25 per cent protein. The

brewers grains were, as would be expected, free from weed seeds.

MISCELLANEOUS REINFORCED FEEDS.

Analyses pages 167 and 168.

There are included under this head feeds which run from about 14 to 20 per cent protein; there is no special reason for grouping them together other than that they are nitrogenous feeds, in contrast to the refuses from the milling of oats, corn, etc., which are low in protein.

The *Badger Dairy Feed* is about up to its guaranty in protein. One sample, No. 2836, examined was found to have about 10 per cent of weed seeds, among which were pigweed, mustard, yellow foxtail, wild buckwheat, lady's thumb and flax.

Daisy Dairy feed. In the early part of the season the Daisy Dairy feed was sold by the Great Western Cereal Company under a guaranty of 16 per cent protein and 3 per cent fat. The samples from the dealers ran, however, considerably below this and the guaranties were changed to accord with fact. The representative of the Great Western Cereal Company said that they intended to make these goods up to the guaranty but in order to be safe, later in the season they lowered the guaranty to 14 per cent protein and the later samples fairly maintained that guaranty. It was stated in explanation of the earlier goods running as low as 12 and 13 per cent protein that the miller had taken upon himself to change the composition of the feed. Be that as it may, the goods have been from the standpoint of the feeding stuff law one of the most unsatisfactory that have come into the State the present season. They are, however, quite free from weed seeds and practically none of the seeds germinated.

Hammond Dairy feed. Only one sample of Hammond Dairy feed was examined,—none being sent to us by customers. Evidently it is not much used in the State. About 5 per cent of the goods were weed seeds, including pigweed, lady's thumb, mustard, wild buckwheat, green foxtail and hedge mustard. In this sample the pigweed germinated readily and an ordinary 100 pound bag would furnish at the rate of over 18,000 pigweed plants.

H. J. Flax Feed is discussed on page 200.

Merritt's Jersey Cow feed. E. Merritt & Sons of Houlton are local millers and grind native grains to which is added cottonseed meal in order to make a feed for milch cows. They use native grains together with the pinched wheat, oats, barley and weed seeds that came from the cleaning of wheat in their flour mill. They grind this with western corn and add to the feed, ground second quality buckwheat, without hulls. To this grain mixture they add a third by weight of good grade cottonseed meal. It will be noted therefore that this feed, if thoroughly mixed, is made up of three-fourths mixed grains and mill screenings and one-fourth cottonseed meal. Four years ago they sent a sample to the Station and based upon that analysis they claimed for it 28 per cent protein and 6 per cent fat. The analysis as reported in bulletin 102 of this Station showed it to carry 29.13 per cent protein and 6.65 per cent fat. These goods were not sold in bags but were sold in bulk and put into the customers' bags and for this reason they had never been sampled officially. In the winter of 1907-8 a sample of this feed was sent in by a correspondent, analyzed as No. 2793 and found to carry only 17.13 per cent protein. These goods were not sold under a guaranty but on request of the consumer, E. Merritt & Sons sent one of their advertising tags which claimed 28 per cent protein for the goods. This particular sample carried about 10 per cent weed seeds including mustard, pigweed, persicaria, lady's thumb, corn cockle, horsemint, flax, wild buckwheat and green foxtail. The seeds were not finely ground and when subjected to a germination test those that germinated were chiefly mustard and at the rate of about 36,000 plants per 100 pounds. It will be noted from the table of weed seeds found in feeds given on page 191 that all of these goods are heavily loaded with weed seeds, many of which will germinate. Naturally this led to correspondence with the makers and a sample was sent to us from the mill which was found to carry 21.38 per cent protein. They also submitted a sample of the grain mixture before it had been reinforced by cottonseed meal and it was found to carry 12.32 per cent protein.

The manufacturers seem to have placed this guaranty upon their goods in good faith and state "The demand for this feed is largely local from persons who have used it for years and would not care for analysis." They made affidavit that they

would in the future place proper guaranty upon these goods as sold and that "in our advertising and in our guaranty, place the per cent of protein and fat even lower than an unevenly mixed sample could possibly show it." For these reasons the case was allowed to rest.

Premium Calf Meal was first submitted as a manufacturer's sample and then an official sample was taken. As will be noted from the analyses these two samples differ very widely in guaranty and in composition.

Union Grains continue to be quite largely used in the State. They are still sold under a guaranty of 24 per cent protein and 7 per cent fat; they fall about 2 per cent below their guaranty in protein and somewhat under in fat. The manufacturers state that other states are finding these goods to be well up to the guaranty but that they would make special tags of 22 per cent protein for goods shipped into the State. Our inspector, however, has failed to find any changed guaranties.

Molac Molasses Dairy feed. Three samples of these goods were obtained, two of which were found to run well up to the guaranty. One sample, No. 2912 was examined for weed seeds and about 10 per cent of the material consisted of seeds of green foxtail, yellow foxtail, mustard, lady's thumb, pigweed, wild buckwheat, hedge mustard, and samples No. 2892 and 2018 carried rather similar percentages of about the same kind of weeds. In one sample pigweed and foxtail germinated at the rate of over 125,000 weed plants per 100 pound bag.

Sucrene Dairy feed. This feeding stuff ran well up to the guaranty in protein and above in fat. This carried about 5 per cent or more of weed seeds, including pigweed, wild buckwheat, green foxtail, yellow foxtail, hedge mustard, flax, goosefoot, lady's thumb, pale persicaris, dock, mustard, ragweed, field peppergrass and evening primrose. In one sample over 180,000 pigweed per 100 pounds germinated.

REFUSES FROM MILLING OATS, CORN, ETC.

Analyses pages 169 and 170.

The market still carries a large number of oat feeds, corn chops, corn and oat feeds and similar offals by themselves and blended with concentrated feeds. They vary in composition

from the straight oat hull refuse with perhaps 6 per cent protein, to the blends that carry from 15 to 18 per cent of protein. For the most part these goods are fairly well up to their guaranty and no fault can be found with the manufacturer for desiring to sell these waste products. Few or no claims are made for nutrients which the goods do not actually carry. The feeder has himself to blame if, with barns filled with hay, corn stalks and silage, he buys feeds low in protein instead of those high in protein. An oat feed with 6 per cent protein is no better feed nor is it any better digested than a coarse fodder with the same protein content. This class of foods can probably be economically used only by feeders who find it necessary to buy "roughage" as well as concentrates.

One sample of *Ideal Corn, Barley and Oat feed* was found in the western part of the State; it was below guaranty in protein and fat. It, however, contained no weed seeds. These goods probably have a small sale and only in the western part of the State.

The *Boss Chop feed* was above the guaranty in both protein and fat. It carried a few mustard seeds.

One sample of *Chop feed* made by David Stott was found which was not guaranteed according to law. It had about the ordinary analysis of a chop feed, but carried from 3 to 5 per cent of weed seeds, including pigweed, lady's thumb, ragweed, common mallow, green foxtail, yellow foxtail, and wild buckwheat. These seeds were alive and in sufficient quantity to furnish upwards of 18,000 weed plants per 100 pounds feed.

One sample of *Fine Ground Eclipse feed* for stock was found and ran above the guaranty in protein. It carried from 3 to 5 per cent of weed seeds, of which wild buckwheat was the most common. There was, however, considerable ragweed, corn cockle, flax, pigweed, yellow foxtail and wild sunflower.

The *Empire feed for stock* was for the most part above the guaranty and was free from weed seeds. *Haskell's stock feed* ran above the guaranty and with the exception of a few ragweed seeds, no foreign seeds were found. The *Horse feed* of the Buffalo Cereal Co. was up to guaranty and carried a few wild buckwheat and mustard seeds. *Husted Stock feed* was up to guaranty. *Pearl Cooked Horse and Cow feed* was above

guaranty and carried no weed seeds. *Schumacher's Stock feed* ran, for the most part, well above the guaranty. It carried few seeds of mustard and lady's thumb; which, however, did not germinate.

Victoria Chop feed ran uneven,—one sample being well up and the other below guaranty. It, however, carried no weed seeds. The *Vigo Corn and Oat feed* fell considerably below guaranty. It had a few foxtail and pigweed seeds, which, however, did not germinate. The *Wirthmore Stock feed* was below guaranty in protein, but considerably above in fat; it had no weed seeds. The *Hominy feeds* were all up to guaranty. One lot of *Ground Rice feed* was found and was considerably below guaranty.

POULTRY FEEDS.

Analyses page 170.

These mixed goods are difficult to sample and hence it is possible that the samples did not fairly represent the goods. The *Dry Mash feed* was considerably below the guaranty as was also *Schumacher's Scratching feed*. These all carried more or less weed seeds. The *Purina Baby Chick feed* was about a fourth weed seeds, such as pigweed, mustard, green foxtail, yellow foxtail, wild buckwheat, flax, raspberry and lady's thumb. While these seeds would germinate, it is very likely that they would be so acted upon in the digestive apparatus of the chickens as to lose vitality.

WHEAT OFFALS.

Analyses pages 171 to 174.

The wheat offals do not come under the requirements of the feeding stuffs law provided they are not adulterated. In many instances, these goods are guaranteed and for the most part they are well up to the guaranties placed upon them by the makers. On page 193 there will be found the examination of these goods for weed seeds. Except in one sample of *Gem Soft Wheat Mill Run* mixed feed made by the Allen Baker Corn Co., which carried about 2 per cent of corn cockle,* there were no more foreign seeds than would naturally be expected. Not only was

* See page 202 relative to poisonous weed seeds.

there much corn cockle in this mixed feed, which is poisonous to animals, but the seed germinated at the rate of upwards of 45,000 plants per 100 pound bag of the feed, so there was great danger of spreading this pernicious weed from its use.

There is no class of feeding stuffs in which the consumer needs to use greater care at present than in the purchase of mixed feeds. There is so much profit in selling ground corn cobs and broom corn at the price of wheat bran that the consumer must ever be on the watch against this fraud. The safest thing is to buy only well known, reliable brands of this class of goods. The bulletin gives the names and analyses of many manufacturers of high class brans and other wheat offals. If consumers will see to it that all of this class of feeds which they buy carries the name of the miller there will be little likelihood of their being defrauded. In case of any doubt, mail a sample to the Station and an analyses will be made and the results reported promptly and without charge.

ADULTERATED WHEAT OFFALS.

Analyses page 175.

With the exception of the mixed feeds from Kentucky, sold chiefly under the names of *Blue Grass* and *Jersey* mixed feeds, no adulterated wheat offals have been found upon the market. These goods as offered in the State are properly tagged, carrying not only the percentage of protein and fat, but the statement of their composition showing the materials that have been added to the wheat bran. Their sale is perfectly proper under the law when they are correctly labeled. There is, however, practically no feeding value in corn cobs and as these adulterated wheat offals are sold for only one dollar or so per ton below the price of a straight wheat bran, they are expensive feeds.

BEEF SCRAPS.

Analyses page 175.

Ground beef scraps are used chiefly for feeding poultry and while they are more or less generally distributed, the sales are small as compared with other materials coming under the feeding stuffs law. In some instances, at any rate, the guaranty as

placed upon the goods is only a very general guide to the actual composition.

WEED SEEDS IN FEEDING STUFFS.

In connection with the regular inspection of feeding stuffs during the season of 1907-08 it was thought best to make an investigation of the noxious weed seeds which are found in some of these feeds. Attention was drawn to this matter by the recent introduction into Maine of several feeds which are heavily loaded with weed seeds and which seem to find ready sale in many sections.

One or more samples were selected as representative of each of the various feeding stuffs which seemed at all likely to contain weed seeds either because of accident, imperfect separation, or intentional addition. These included brans, brewers and distillers grains, mixed feeds, chop feeds, stock and dairy feeds, flax feeds, malt sprouts, middlings, molasses feeds, scratch feeds, union grains, etc. Oil meals, gluten feeds, and similar feeds were not examined for weed seeds. Each sample selected was carefully examined by the seed analyst and an estimate made of the amount of weed seeds present. The principal kinds were identified and noted. These weed seeds are designated by the common name used in this section. In order to identify them conclusively they may be referred to the list given on pages 54 and 55 in bulletin 152 of this Station. The results of this examination are given in the table which begins on page 190.

VIALBLE WEED SEEDS.

Those feeds which contained the largest amounts of weed seeds were tested for germination in order to determine whether or not the seeds present would grow under favorable conditions. A germinator of the Geneva type was used and 5 gram charges of each feed were taken for the test. At the end of 5 days the samples were covered thickly with mold and it seemed improbable that any more seeds would germinate so the tests were stopped at the end of this period. The results of this 5 day germination test are given in the table which begins on page 196.

TABLE SHOWING WEED SEEDS FOUND IN FEEDS.

Kind of feed.	Manufacturer.	Sta. No.	Weed seeds found.
NITROGENOUS FEEDS			
Rye Protegram.....	Dewey Bros. Co.....	2009	Few wild buckwheat
Union Grains.....	J. W. Biles Co.....	2878	No weed seeds
Ajax Flakes.....	Ajax Milling & Feed Co.	2710	No weed seeds
Continental Gluten Feed	Continental Cereal Co...	2006	No weed seeds
Distillers Grains.....	C. F. Keck & Co.....	2816	No weed seeds
Fourcx.....	J. W. Biles Co.....	2709	No weed seeds
Brewers Grains.....	C. A. Krause Grain Co...	2708	No weed seeds
Malt Sprouts.....	American Malting Co...	2805	About one per cent weed seeds including wild buckwheat, rape, yellow fox-tail, mustard, and corn cockle.
MISCELLANEOUS REINFORCED FEEDS			
Acme Feed.....	Acme Milling Co.....	2877	Few hulls of wild buckwheat and mustard
Badger Dairy Feed.....	C. A. Krause Milling Co.	2836	About ten per cent weed seeds including pigweed, mustard, yellow fox tail, wild buckwheat, lady's thumb and flax. Few hulls of corn cockle.
Daisy Dairy Feed.....	Great Western Cereal Co.	2736	Wild buckwheat, ragweed, and mustard.
Daisy Dairy Feed.....	Great Western Cereal Co.	2874	Wild buckwheat, yellow fox-tail and mustard.
Daisy Dairy Feed.....	Great Western Cereal Co.	2802	Wild buckwheat and mustard.
Daisy Dairy Feed.....	Great Western Cereal Co.	2874	Wild buckwheat, yellow fox-tail, mustard, pale persicaria
Hammond Dairy Feed...	Western Grain Products Co.....	2705	About five per cent weed seeds including pigweed, lady's thumb, mustard, wild buckwheat, green fox-tail, and hedge mustard
H. J. Flax Feed.....	Henry Jennings.....	2665	Between 40 and 50 per cent weed seed including wild buckwheat, yellow fox-tail, green foxtail, lady's thumb, flax, pigweed, mustard, wild sunflower, ragweed and field peppergrass
H. J. Flax Feed.....	Henry Jennings.....	2632	About 20 per cent weed seeds including pigweed, mustard, green foxtail, mustard, green foxtail, yellow foxtail, and flax
H. J. Flax Feed.....	Henry Jennings.....	2636	From 30 to 40 per cent weed seeds, lady's thumb, green foxtail, yellow foxtail, mustard, flax, wild buckwheat and persicaria
H. J. Flax Feed.....	Henry Jennings.....	2656	From 25 to 30 per cent, weed seeds including pigweed, mustard, green foxtail, yellow foxtail, flax, wild buckwheat, and hedge mustard

TABLE SHOWING WEED SEEDS FOUND IN FEEDS.

Kind of feed.	Manufacturer.	Sta. No.	Weed seeds found.
MISCELLANEOUS REINFORCED FEEDS—Continued.			
H. J. Flax Feed.....	Henry Jennings.....	2678	From 25 to 30 per cent weed seeds including pigweed, mustard, yellow foxtail, green foxtail, flax, lady's thumb, hedgemustard and wild buck wheat
H. J. Flax Feed.....	Henry Jennings.....	2717	About 20 per cent weed seeds including pigweed, green foxtail, yellow foxtail, flax, mustard and field peppergrass
H. J. Flax Feed.....	Henry Jennings.....	2773	From 50 to 60 per cent weed seeds including pigweed, mustard, green foxtail, yellow foxtail, hedge mustard, flax, lady's thumb wild buckwheat and ragweed
H. J. Flax Feed.....	Henry Jennings.....	2774	About 25 per cent weed seed including pigweed, mustard, green foxtail, yellow foxtail, flax and lady's thumb
H. J. Flax Feed.....	Henry Jennings.....	2826	About 30 per cent weed seed including pigweed, green foxtail, yellow foxtail, lady's thumb, flax, mustard, persicaria, wild buckwheat and field peppergrass
H. J. Flax Feed.....	Henry Jennings.....	2864	From 30 to 40 per cent weed seeds including pigweed, green foxtail, yellow foxtail, mustard, wild buckwheat, lady's thumb and flax
H. J. Flax Feed.....	Henry Jennings.....	2920	Between 40 and 50 per cent weed seeds including mustard, pigweed, green foxtail, yellow foxtail, wild buckwheat, lady's thumb flax and hedge mustard
H. J. Flax Feed.....	Henry Jennings.....	2943	Between 40 and 50 per cent weed seeds including mustard, pigweed, green foxtail, yellow foxtail, hedge mustard, lady's flax, thumb, wild buckwheat and ragweed
H. J. Flax Feed.....	Henry Jennings.....	2944	About 25 per cent weed seeds including wild buckwheat, mustard, green foxtail, yellow foxtail, pigweed, flax and lady's thumb
Merritt's Jersey Cow Feed.....	E. Merritt & Sons.....	2793	About 10 per cent weed seeds including mustard pigweed, persicaria, lady's thumb, corn cockle, horse mint, flax, wild buckwheat, and green foxtail

TABLE SHOWING WEED SEEDS FOUND IN FEEDS.

Kind of feed.	Manufacturer.	Sta. No.	Weed seeds found.
MISCELLANEOUS REINFORCED FEEDS—Continued.			
Merrett's Jersey Cow Feed.....	E. Merrett & Sons.....	2777	About 5 per cent, weed seeds including mustard, pigweed, persicaria, horse nettle, lady's thumb, corn cockle, ragweed, wild buckwheat, horse mint and knot-grass
Merrett's Jersey Cow Feed.....	E. Merrett & Sons.....	2809	About 5 per cent weed seeds including yellow foxtail, night flowering catchfly, persicaria, horse nettle, pigweed, and lady's thumb
Foundation of Merrett's Jersey Cow Feed.....	E. Merrett & Sons.....	2847	From 8 to 10 per cent weed seeds including lady's thumb, persicaria, pigweed, mustard
Molac Molasses Dairy Feed.....	Quaker Oats Co.....	2018	From 5 to 10 per cent weed seeds including wild buckwheat, lady's thumb, green foxtail, yellow foxtail, mustard, pigweed and flax
Molac Molasses Feed...	American Cereal Co.....	2892	From 5 to 7 per cent weed seeds including wild buckwheat, mustard, yellow foxtail, lady's thumb and flax
Molac Dairy Feed.....	Quaker Oats Co.....	2912	About 10 per cent or more weed seeds including green foxtail, yellow foxtail, mustard, lady's thumb, pigweed, wild buckwheat, hedge mustard, and night flowering catchfly
Sucrene Dairy Feed.....	American Milling Co.	2960	About 5 per cent weed seeds including pigweed, wild buckwheat, green foxtail, yellow foxtail, hedge mustard and flax
Sucrene Dairy Feed.....	American Milling Co.	2756	Goosefoot, lady's thumb, pale persicaria, dock, mustard, ragweed, field peppergrass, evening primrose
Sucrene Dairy Feed.....	American Milling Co.	2757	Goosefoot, lady's thumb, pale persicaria, dock, mustard, ragweed, field peppergrass, evening primrose

CORN, BARLEY AND OAT FEEDS

Ideal Corn, Barley, and Oats Feed.....	E. T. & H. K. Ide.....	2954	No weeds
Boss Chop Feed.....	Great Western Cereal Co.	2967	Few mustard seeds
Boss Chop Feed.....	Great Western Cereal Co.	2779	No weed seeds
Chop Feed.....	David Stott.....	2990	From 3 to 5 per cent weed seeds including pigweed, lady's thumb, ragweed, common mallow, green foxtail, yellow foxtail, and wild buckwheat

TABLE SHOWING WEED SEEDS FOUND IN FEEDS.

Kind of feed.	Manufacturer.	Sta. No.	Weed seeds found.
MISCELLANEOUS REINFORCED FEEDS—Continued.			
FineGround Eclipse Feed	Husted Milling & Elevator Co.....	2711	From 3 to 5 per cent weed seeds. Wild buckwheat most common, others are ragweed, corn cockle, flax, pigweed, yellow foxtail and wild sunflower
Empire Feed.....	Empire Mills.....	2964	No weed seeds
Haskell's Stock Feed....	W. H. Haskell & Co....	2898	Very few ragweed
Horse Feed.....	Buffalo Cereal Co.....	2897	Few wild buckwheat and mustard
Pearl Cooked Horse and Cow Feed.....	Flint Mills Co.....	2919	No weed seeds
Schumacher's Stock Feed	American Cereal Co....	2895	Few mustard and lady's thumb
Victoria Chop.....	Royce & Coon Grain Co.	2893	No weed seeds
Vigo Corn & Oats Feed..	Indiana Milling Co.....	2602	Few foxtail and pigweed
Wirthmore Stock Feed..	C. M. Cox Co.....	2767	No weed seeds

POULTRY FEEDS

Dry Mash Feed.....	Park & Pollard.....	2889	Few hulls of wild buckwheat and mustard
Schumacher's Scratching Feed.....	Quaker Oats Co.....	2906	Few corn cockle, mustard, and yellow foxtail
Purina Baby Chick Feed	Ralston Purina Mills...	2594	About 25 per cent weed seeds including pigweed, mustard, green foxtail, yellow foxtail, wild buckwheat flax, raspberry, and lady's thumb

WHEAT OFFALS

Adrian Bran.....	Detroit Milling Co.....	2015	Few wild buckwheat hulls
Bran.....	Ansted & Burk Co.....	2713	Few mustard
Bran.....	David Stott.....	2987	Few yellow foxtail
Bran.....	Dwight Flour Mills.....	2868	Few yellow foxtail. Few cockle hulls
Bran.....	F. W. Stock & Sons.....	2867	Few hulls of cockle and wild buckwheat
Bran.....	Hunter Bros.....	2700	No weed seeds
Bran.....	Kelley & Lysle Milling Co	2601	No weed seeds
Bran.....	Morris City Mill.....	2929	Few hulls of cockle and wild buckwheat
Bran.....	Northwestern Consolidated Co.....	2916	Few hulls of cockle and wild buckwheat
Bran.....	Pillsbury.....	2922	Few hulls of wild buckwheat
Bran.....	Red Lake Falls Milling Co	2032	Few hulls of cockle
Bran.....	Washburn-Crosby Co....	2812	Few pigweed
Bran & Shorts.....	Glen Villin Roller Mills	2024	Few wild buckwheat, few cockle hulls

TABLE SHOWING WEED SEEDS FOUND IN FEEDS.

Kind of feed.	Manufacturer.	Sta. No.	Weed seeds found.
Clover Leaf Bran.....	Seymour Carter.....	2966	Few hulls of wild buckwheat and mustard
Jersey Bran Winter Wheat.....	Geo. C. Christian.....	2926	Few hulls of wild buckwheat and cockle
Pure Wheat Bran.....	Chapin & Co.....	2019	No weed seeds
Pure Winter Wheat Bran	Shellabarger Mill & Elevator Co.....	2788	No weed seeds
Vimco Bran.....	Valley City Milling Co.	2978	Few hulls of cockle and tearthumb
Winter Wheat Bran....	Dow & King.....	2731	No weed seeds
Badger Standard Middlings.....	Badger Crittenden Milling Co.....	2907	No weed seeds
Gopher Middlings.....	Brooks Elevator Co.....	2958	Some pigweed and mustard
Middlings.....	Doten Grain Co.....	2029	Some pigweed, wild buckwheat and mustard
Middlings.....	Wm. A. Coombs Milling Co.....	2691	Few wild buckwheat hulls
Middlings.....	Ansted & Burk Co.....	2981	No weed seeds
Middlings.....	Dow & King.....	2732	No weed seeds
Middlings.....	H. C. Cole Milling Co....	2985	No weed seeds
Pillsbury's B Middlings..	Pillsbury.....	2901	Some weed seeds ground too fine to be identified
Snow Flake Middlings..	Lawrenceburg Roller Mills Co.....	2969	No weed seeds
Stott's Climax Middlings	David Stott.....	2989	Few wild buckwheat and mustard hulls
Trojan Middlings.....	Allen & Wheeler.....	2942	No weed seeds
Apex Fancy Mill Run Mixed Feed.....	Allen Baker Co.....	2025	No weed seeds
Blue Grass Mixed Feed..	A. Waller & Co.....	2033	Few corn cockle hulls
Boston Mixed Feed....	Duluth Superior Mills Co.	2869	Few hulls of mustard and wild buckwheat
Boston Mixed Feed....	Duluth Superior Mills Co.	2000	Some wild buckwheat, pigweed, and corn cockle. Pigweed most common
Buck Eye Mixed Feed...	Quaker Oats Co.....	2863	Few yellow foxtail. Some hulls of wild buckwheat and corn cockle
Bull's Eye Mixed Feed..	Blish Milling Co.....	2858	Few corn cockle. Few hulls of wild buckwheat
Bull's Eye Mixed Feed..	Blish Milling Co.....	2998	Some corn cockle seeds and some corn cockle hulls
Champion Mixed Feed...	Portland Milling Co....	2991	Some corn cockle hulls
Columbia Mixed Feed...	.....	2887	About one per cent weed seeds including wild buckwheat, mustard, and yellow foxtail. Some crushed seeds also
Eaco Mixed Feed.....	Everett Augenbaugh & Co.....	2941	Few mustard seeds and some wild buckwheat hulls
Erie Mixed Feed.....	Chapin & Co.....	2956	Few wild buckwheat hulls
Fancy Mixed Feed.....	Kelley Milling Co.....	2923	Some pigweed, some hulls of cockle and wild buckwheat
Farmers' Favorite Mixed Winter Wheat, cow feed	Valley City Milling Co..	2914	Some corn cockle and wild buckwheat badly crushed

TABLE SHOWING WEED SEEDS FOUND IN FEEDS.

Kind of feed.	Manufacturer.	Sta. No.	Weed seeds found.
Frontier Pure Wheat Mixed Feed.....	Flint Mills Co.....	2020	Few corn cockle hulls
Gem Soft Wheat Mill Run Mixed Feed.....	Allen Baker Corn Co....	2927	About two per cent corn cockle
Gem Soft Wheat Mill Run Mixed Feed.....	Allen Baker Corn Co....	2961	Few corn cockle seeds and hulls
Gold Heart Mixed Feed..	Mo. Valley Milling Co..	2924	Small quantity mustard and wild buckwheat badly crushed
Gold Mine Mixed Feed..	Sheffield, King, Milling Co	2789	Few hulls of buckwheat, mustard and corn cockle
Hunter's Matchless Mixed Feed.....	Hunter Bros. Milling Co.	2026	No weed seeds
Hunter's Sunshine Mill Feed.....	Hunter Bros. Milling Co.	2938	Few wild buckwheat and corn cockle
Ideal Mixed Feed.....	Fergus Flour Mills Co...	2903	Few hulls of corn cockle and wild buckwheat
Jersey Mixed Feed.....	Indiana Milling Co.....	2963	No weed seeds
Kehlor's Mill Feed.....	Kehlor Flour Mills.....	2016	No weed seeds
King Feed.....	R. P. Moore Milling Co..	2997	Few corn cockle
Mixed Feed.....	Ansted & Burk Co.....	2932	No weed seeds
Mixed Feed.....	Huron Milling Co.....	2719	Few hulls of corn cockle
Mixed Feed.....	Wm. A. Coombs Milling Co.....	2948	Few hulls of corn cockle
Sanford Mixed Feed.....	Griswold & Mackinnon	2913	Few hulls of mustard and wild buckwheat
Snow Flake Mixed Feed	Lawrenceburg Roller Mills Co.....	2938	Few hulls of corn cockle and wild buckwheat
Stock's Monarch Mixed Feed.....	F. W. Stock & Sons....	2870	About 2 per cent weed seeds including wild buckwheat yellow foxtail, and ragweed
Stott's Honest Mixed Feed	David Stott.....	2988	Few hulls of corn cockle and wild buckwheat
Vermont Mixed Feed....	Flint Mills Co.....	2933	Few hulls of corn cockle and wild buckwheat
Voight's Winter Mixed Feed.....	Voight Milling Co.....	2904	Few hulls of corn cockle and wild buckwheat

TABLE SHOWING WEED SEEDS GERMINATED IN FEEDS.

Sta. No.	No. weed seeds sprouted per bag (100 lbs. of feed)	Principal kinds of weed seeds sprouted
2805	MALT SPROUTS 9,072	Mustard
2009	RYE PROTOGRAN.....	.....
2892	MOLAC FEED.....	.....
2912	127,008	Pigweed, foxtails
2018	9,072	Pigweed
2960	SUCRENE DAIRY FEED.....	.....
2632	H. J. FLAX FEED 225,800	Pigweed, mustard, foxtails, flax
2636	18,144	Pigweed
2656	335,664	Pigweed, foxtails, flax
2665	272,160	Pigweed, mustard, foxtails, lady's thumb, wild buckwheat, flax
2678	290,304	Pigweed, mustard, foxtails
2717	81,638	Pigweed, foxtails
2773	1,886,976	Pigweed, mustard, foxtails, lady's thumb, wild buckwheat, flax
2774	117,936	Pigweed, mustard, foxtails
2826	344,736	Pigweed, mustard, foxtails
2864	934,416	Pigweed, mustard, foxtails, flax, wild buckwheat lady's thumb
2920	99,792	Pigweed, foxtails
2943	1,224,720	Pigweed, mustard, foxtails, lady's thumb, flax
2944	789,265	Pigweed, mustard, foxtails, flax, wild buckwheat lady's thumb
2777	MERRITT'S JERSEY COW FEED 36,288	Mustard
2793	.....	.....
2809	.....	.....
2847	18,144	Lady's thumb
2836	BADGER DAIRY FEED.....	.....
2967	BOSS CHOP FEED.....	.....
2874	DAISY DAIRY FEED.....	.....
2711	ECLIPSE FEED.....	.....
2705	HAMMOND DAIRY FEED 18,144	Pigweed
2898	HASKELL'S STOCK FEED.....	.....
2897	HORSE FEED (Buffalo) .....	.....
2990	DSTOTT'S CHOP FEE 18,144	Foxtails
2997	KING FEED.....	.....
2895	SCHUMACHER'S STOCK FEED.....	.....

TABLE SHOWING WEED SEEDS GERMINATED IN FEEDS.

Sta. No.	No. weed seeds sprouted per bag (100 lbs. of feed)	Principal kinds of weed seeds sprouted
	VIGO CORN AND OATS FEED	
2602	.....	.....
	POULTRY SCRATCH FEEDS	
2594	680,400	Pigweed, foxtails, some flax
2906	.....	.....
	BRAN	
2713	.....	.....
2812	72,576	Pigweed
2868	.....	.....
2987	.....	.....
2024	.....	.....
	MIDDLEINGS	
2958	27,216	Foxtails, pigweed
2989	.....	.....
2025	.....	.....
	MIXED FEED	
2858	.....	.....
2863	.....	.....
2870	18,144	Wild buckwheat
2887	.....	.....
2914	.....	.....
2923	.....	.....
2927	45,360	Corn cockle
2938	.....	.....
2941	.....	.....
2961	.....	.....
2998	.....	.....
3000	27,216	Foxtails

GERMINATION HINDERED BY MOLD.

It was thought that the first trial of 5 days was not conclusive on account of the growth of the mold, which might in itself prevent the growth of the seed, or indirectly, by necessitating too short a period, in this way prevent its growth. In order to determine whether or not more seeds would germinate if the mold was lessened or prevented, several trials were made with the result that a number of the brands of feeds which showed no germination in the first test did, under more favorable conditions, sprout numbers of the weed seeds which they contained. In making these trials in one case the weed seeds contained in one gram of the feed were separated from the rest of the feed and germinated in small Petrie dishes; and in the other cases two grams of the feed were moistened with a dilute solution of formaldehyde (1 part 40 per cent formaldehyde in 400 parts water) and then germinated in the Geneva germinator. These results are tabulated on the next page.

TABLE SHOWING SEEDS GERMINATED AFTER TREATMENT WITH FORMALDEHYDE.

Sta. No.	No. weed seeds sprouted per bag (100 lbs. of feed)	Principal kinds of weed seeds sprouted
2636	H. J. FLAX FEED 226,800	Pigweed
	MERRITT'S JERSEY COW FEED	
2793	68,040	Mustard
2809	.....	.....
2847	.....	.....
	MOLAC FEED	
2892	22,680	Pigweed
2018	45,360	Pigweed, foxtail
	SUCRENE DAIRY FEED	
2960	45,360	Pigweed, foxtail
2960*	181,440	Pigweed

*Weed seeds separated from rest of feed and seed germinated in Petrie dish.

DISCUSSION OF RESULTS OF GERMINATION.

The negative results which are here recorded are of course not conclusive. The weed seeds which did not germinate in some of these samples might under more favorable conditions sprout and grow. The positive results, on the other hand, show conclusively that the weed seeds present are alive and will grow when suitable conditions are at hand. It is quite certain that many of these weed seeds would pass unharmed through the digestive organs of the animals to which they were fed and would find their way to the fields of the owner. A recent bulletin of the Vermont Experiment Station, No. 131, has the following to say in regard to this question of weed seeds:—"Sheep and poultry handle them well; but the digestive system of neither horse nor cow is able to destroy them. To employ materials carrying viable weed seed in the mixture of "dairy" or "horse" feeds, even though they are plastered over with molasses, is little short of atrocity."

CORN COCKLE IN WHEAT OFFALS.*

As may be readily seen in the tables only a very few of the wheat offals, such as the brans, middlings, and mixed feeds contained more weed seeds than should be the case when proper care is used in the separations and grindings. One

* See page 202 relative to poisonous weed seeds in feeding stuffs.

seed which occurs in this class of feeds is the corn cockle, which is quite poisonous. In bulletin No. 20 of the United States Department of Agriculture, Division of Botany, and also in Farmers' Bulletin No. 86, Chesnut calls attention to the corn cockle in part as follows:—"The poison is found in nearly all parts of the plant, but mainly in the kernel of the seed. Cases of poisoning have been noted among all sorts of poultry and household animals, but are rarely due to any portion of the plant as growing in the field. The poisoning is generally produced by a poor grade of flour made from wheat containing cockle seeds. Machinery is used to remove these seeds from the wheat but the difficulty of separating them is so great that the result is not entirely accomplished." According to Chesnut, flour containing corn cockle has often been used for bread and eaten sometimes with fatal results.

In Bulletin No. 36 of the Maryland Agricultural College attention is called to "8 or 10 cases of poisoning of poultry by feeding stuff sold as middlings." These cases were all traced to one lot of the feed which, upon examination, was found to contain considerable corn cockle. A feed which contains as much of this seed as does No. 2927 is objectionable not only on account of the crop of plants which might be grown but because of its possible injury to stock.

WEED SEEDS IN MADE UP FEEDS.

The most flagrant offenders carrying live weed seeds are the molasses or sugar feeds, which include the molac feeds, sucrene dairy feed, Hammond dairy feed, etc., the Merritt's Jersey Cow feed, some of the scratch feeds and the H. J. Flax feed.

In the case of the *molac feeds*, it will be noted that in the first germination test, recorded in the table on page 196, one sample did not sprout at all and a second sprouted a comparatively small number; but on referring to the table on page 198 it will be seen that under more favorable conditions both these samples sprouted quite large numbers of seeds. The same is partially true of Merritt's cow feed. In the first trial two samples did sprout and one did not. The sucrene dairy feed, which did not germinate in the first test, showed good germination in the second test both by separating the weed seeds and by treating

with formaldehyde. The *H. J. Flaxfeed*, however, is the greatest offender. The 13 samples shown in the tables represent the feed as it was found on the Maine markets from August 1907 until the time of making these tests (March, 1908). By referring to table on page 190 it will be seen that from 20 to 60 per cent of this feed is made up of weed seeds, including many of the most troublesome plants found in fields and gardens; and referring to tables 196 and 198 it will be seen that these seeds are alive and that, under suitable conditions they will grow to the number of nearly two millions per each 100 pound bag of the feed. This, taken in connection with the other fact that nearly every sample of this feed, which we have examined, has been below its guaranty of protein, stamps this feed as one of the least desirable brands on the market.

The matter of the quality of the *H. J. Flaxfeed* was taken up with the shipper several times during the winter and he professes willingness to conform to the desires of the Station relative to this feed. He claims that under the name of *H. J. Flaxfeed* "a new process feed is being shipped, free of seeds and finer quality at a low price." It is to be guaranteed 16 per cent protein and 14 per cent fat. The shipper submitted a sample to us of this new process feed which differs materially from the goods that have been shipped under the name of *H. J. Flaxfeed*. No samples, however, have as yet been received from customers in Maine. It is recommended that anyone desiring to handle or use this feed, send samples to the Experiment Station for analysis in accordance with the directions on the back cover.

The *Daisy Dairy feed* contains a considerable amount of weed seeds but the manufacturers claim that the feed has been treated at so high a temperature that it is highly improbable that the seeds would germinate. As this feed has quite an extensive sale it was thought best to try each sample in order to see if this statement was borne out by the facts. Ten different samples were treated with formaldehyde and kept in the germinator for 11 days. With one exception there was no germination, and it seems quite probable that the very small number sprouted in the one case was due to accident in manufacture of the goods.

STATE LEGISLATION AGAINST WEED SEEDS IN FEEDS.

The great tendency to introduce into these waste products foul seeds is a serious one. For the most part there is little known as to the nutritive qualities of these weed seeds; occasionally, notably the case with corn cockle, they are poisonous. They are a great menace to clean fields. Naturally the use of these feeds high in foreign weed seeds will tend to the introduction of undue numbers of undesirable plants and sometimes of plants unknown to the state. In some of the feeding stuffs in the method of preparation, they are heated to a high enough temperature so as to kill the seeds.

As wheat milling offals will always carry more or less foreign weed seeds, a law making it a misdemeanor to sell feeding stuffs that carry weed seeds would be somewhat impracticable. There might, however, be placed a limit to the amount and kinds of foul seeds that would be allowed. It might be practicable to enforce a law that was made specific against any particular weed, as for instance corn cockle. The weed question in feeding stuffs is a very important one. It would seem unwise to attempt to regulate the amount of weed seeds that are present in grass seeds and allow an unrestricted sale of feeding stuffs carrying in some cases more dangerous seeds than grass seeds carry.

Unfortunately, however, the trouble is not confined to wheat offals and the various feeds coming under the requirements of the law. Whole grains, particularly oats, frequently carry large amounts of weed seeds. A sample from a car of oats shipped into Bangor the present year consisted of 80.7 per cent of oats, 4 per cent of inert matter and 15.3 per cent of foreign seeds. Over 9 per cent of these seeds were harmless, such as wheat, timothy, barley, Kentucky blue grass, redtop and white clover, but about 6 per cent were made up of lady's thumb, mustard, goosefoot, winged buckwheat, yellow foxtail, wild buckwheat, pale persicaria, green foxtail, meadow fescue, Menzie's pepper grass, hedge mustard, five finger flax, ragweed, American wild mint, horse nettle, evening primrose, witch grass, night-flowering catchfly, penny cress, yellow wood sorrel and field pepper grass. While this is probably an extreme case and would not be so likely to occur in years when oats were low in price, yet it is

very suggestive of the methods by which large amounts of foreign weed seeds may be brought into the State and distributed broadcast over the farming lands.

WEED SEEDS IN FEEDING STUFFS AND THE FOOD AND DRUG LAW.

After this bulletin was in type a very important decision (Food Inspection Decision 90) was made by the U. S. Board of Food and Drug Inspection, bearing on weeds in feeding stuffs. The two most important points are:

(1) If the screenings of wheat are put in the bran it shall be labeled "Bran and Screenings."

(2) Poultry and cattle foods which contain poisonous weed seeds in appreciable quantities will be considered as adulterated in accordance with the provisions of the law forbidding the presence of poisonous or deleterious ingredients.

As the Maine Food and Drug law is identical with the National law in its requirements, and by it the Director of the Experiment Station is empowered to make rules, regulations and standards which shall "when possible, conform to and be the same as the rules and regulations adopted from time to time for the enforcement of" the National Food and Drug Law, F. I. D. 90 respecting weed seeds becomes a part of the Maine Food and Drug Law and will be enforced in Maine after July 1, 1908.

To avoid possible violations, dealers should avail themselves of the written guaranty as outlined on page 158.

FREE ANALYSIS OF FEEDING STUFFS.

The Station officers take pains to obtain for analysis samples of all feeding stuffs coming under the law, but the co-operation of consumers is essential for the full and timely protection of their interests. Whenever anyone believes that this law is being evaded in any way, he is requested to notify the Director of the Station.

The Station will promptly analyze samples of feeding stuffs sold in Maine taken in accordance with the following directions, and report the results without any charge to the interested parties. Dealers and consumers are urged to avail themselves of this offer.

DIRECTIONS FOR SAMPLING.

The sample should fairly represent the feeding stuff and is best obtained as follows:

Open one or more full and unbroken packages, and mix well together the contents of each for a foot in depth, take out three cupfuls from different parts of the mixed portions of each package, pour them one over another upon a paper, intermix thoroughly, and fill a tin spice or baking powder box from the mixture. Upon paper plainly write (1) the name of the goods; (2) the name of the manufacturer; (3) the guaranteed percentages of protein and fat; (4) the name and address of the dealer; and (5) the name and address of the sender. Securely wrap the box and description of sample in paper and send by mail or express.

All correspondence relative to the laws regulating the sale of food and drugs, feeding stuffs, fertilizers, seeds and creamery glassware, should be addressed to

Director CHAS. D. WOODS,
Orono, Maine.

FREE ANALYSIS OF FOODS, FEEDS, FERTILIZERS, AND SEEDS.

The Station takes pains to obtain for analysis samples of all brands of fertilizers and feeding stuffs coming under the law. It also draws samples of agricultural seeds and foods in the hands of dealers. The co-operation of dealers and consumers is, however, essential for the full and timely protection of their interests.

Foods. Dealers and consumers are invited to send by pre-paid express original and unbroken packages of food materials on sale in Maine of whose purity they are for any reason suspicious. Special directions for sending goods from opened packages will be sent on request. As prompt free analysis will be made of such samples as circumstances will allow.

Feeding Stuffs. The Station will promptly analyze samples of feeding stuffs sold in Maine taken in accordance with directions which will be furnished on application. The results will be promptly reported without charge to interested parties. This applies to dealers and consumers alike.

Commercial Fertilizers. It is difficult to draw accurate samples of commercial fertilizers. On this account it is only in rare instances that the Station undertakes analyses of fertilizers other than the samples collected by its representative. In case there is special reason for an examination, the Station invites correspondence on the subject.

Agricultural Seeds. Samples of agricultural seeds on sale in Maine, taken in accordance with directions which can be obtained on application to the Station, will be examined as promptly as possible and the results reported free of charge.

In all cases samples should be accompanied by a full description of the goods, including the name and address of the dealer and the sender. Small samples other than liquids can be forwarded by mail. Others should be forwarded by express, charges prepaid.

All correspondence relative to the laws regulating the sale of food and drugs, feeding stuffs, fertilizers, seeds and creamery glassware, should be addressed to

Director CHAS. D. WOODS,
Orono, Maine.